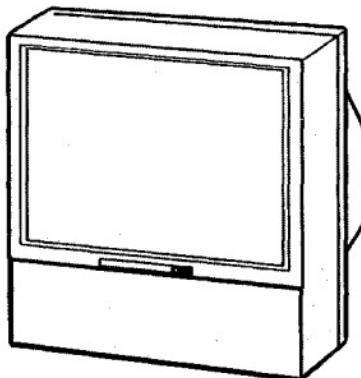


# JVC

## SERVICE MANUAL

REAR PROJECTION TELEVISION

### AV-48PRO AV-48PROX



## CONTENTS

■ SAFETY PRECAUTIONS .....	3
■ OPERATING INSTRUCTIONS .....	4
■ SPECIFIC SERVICE INSTRUCTIONS .....	22
■ SERVICE ADJUSTMENTS .....	26
■ STANDARD CIRCUIT DIAGRAM .....	44
★ SCHEMATIC DIAGRAM [1/4~4/4] (APPENDED)	
★ PARTS LIST .....	61
■ SPECIFICATIONS .....	61

# CONTENTS

■ SAFETY PRECAUTIONS .....	3
■ OPERATING INSTRUCTINS .....	4
■ SPECIFIC SERVICE INSTRUCTIONS	
DISASSEMBLY PROCEDURE [MECHANICAL DISASSEMBLY] .....	59
SCREEN AND MIRROR ALIGNMENTS .....	22
SERVICE POSITION .....	23
CRT ASSEMBLY REPLACEMENT AND MOUNTING .....	24
■ SERVICE ADJUSTMENTS	
PICTURE TUBE COMPONENTS ADJUSTMENT .....	26
LOCATION OF SCREEN AND FOCUS VR .....	28
CIRCUIT CHECKS .....	29
SERVICE MODE (ADJUSTMENT MODE) .....	30
DESIGN MODE .....	33
ELECTRICAL ADJUSTMENT .....	34
CONVERGENCE ADJUSTMENTS .....	36
SETTING & ADJUSTING DATA .....	41
■ STANDARD CIRCUIT DIAGRAM	
TERMINAL VIEW OF TRANSISITORS .....	44
★ SCHEMATIC DIAGRAM [1/4~4/4] (APPENDED)	
CHASSIS BLOCK DIAGRAM .....	57
★ PARTS LIST	
■ SPECIFICATIONS .....	61

# SAFTY PRECAUTIONS

**WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" INSTRUCTIONS BELOW.**

## X-RAY RADIATION PRECAUTION

1. Excessive high voltage can produce potentially hazardous X-RAY RADIATION. To avoid such hazards, the high voltage must not be above the specified limit. The nominal value of the high voltage of this receiver is  $\textcircled{A}$  kV at zero beam current (minimum brightness) under a  $\textcircled{B}$  VAC power source. The high voltage must not, under any circumstances, exceed  $\textcircled{C}$  kV.
2. The only source of X-RAY RADIATION in this TV receiver is the picture tube. For continued X-RAY RADIATION protection, the replacement tube must be exactly the same type tube as specified in the parts list.
3. Some part in this receiver have special safety-related characteristics for X-RAY RADIATION protection. For continued safety, parts replacement should be undertaken only after referring to the PRODUCT SAFETY NOTICE below.

Refer to table 1 for high voltage  $\textcircled{A}$ ,  $\textcircled{B}$  & AC Voltage  $\textcircled{C}$ .  
(See SETTING & ADJUSTING DATA on page 41.)

Each time a receiver requires servicing, the high voltage should be checked following the HIGH VOLTAGE CHECK procedure in this manual. It is recommended that the reading of the high voltage be recorded as a part of the service record. It is important to use an accurate and reliable high voltage meter.

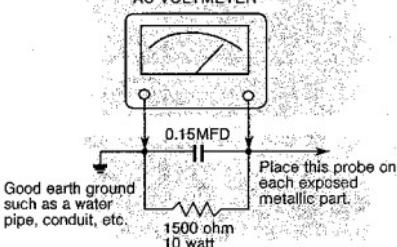
## SAFETY PRECAUTION

**WARNING :** Service should not be attempted by anyone unfamiliar with the necessary precautions on this receiver. The following are the necessary precautions to be observed before servicing this chassis.

1. An isolation Transformer should be connected in the power line between the receiver and the AC line before any service is performed on the receiver.
2. Always discharge the picture tube anode to the CRT conductive coating before handling the picture tube. The picture tube is highly evacuated and if broken, glass fragments will be violently expelled. Use shatter proof goggles and keep picture tube away from the unprotected body while handling.
3. When replacing a chassis in the cabinet, always be certain that all the protective devices are put back in place, such as; non-metallic control knobs, insulating covers, shields, isolation resistor-capacitor network etc.
4. Before returning the set to the customer, always perform an AC leakage current check on the exposed metallic parts of the cabinet, such as antennas, terminals, screwsheads, metal overlays, control shafts etc. to be sure the set is safe to operate without danger of electrical shock. Plug the AC line cord directly into a 220V AC outlet (do not use a line isolation transformer during this check). Use an AC voltmeter having 5000 ohms per volt or more sensitivity in the following manner:

Connect a 1500 ohm 10 watt resistor, paralleled by a 0.15 mfd, AC type capacitor, between a known good earth ground (water pipe, conduit, etc.) and the exposed metallic parts, one at a time. Measure the AC voltage across the combination of 1500 ohm resistor and 0.15 mfd capacitor. Reverse the AC plug at the AC outlet and repeat AC voltage measurements for each exposed metallic part. Voltage measured must not exceed 0.3 volts RMS. This corresponds to 0.2 milliamp. AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.

## AC VOLTMETER



## PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These characteristics are often passed unnoticed by a visual inspection and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by the international hazard symbols on the schematic diagram and the parts list.

Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire, X-ray radiation or other hazards.

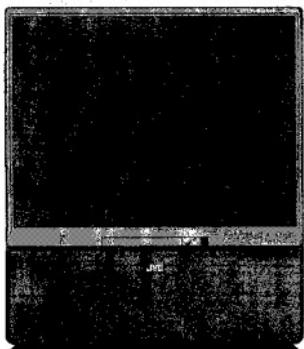
# OPERATING INSTRUCTIONS

**JVC**



REAR PROJECTION TELEVISION

## AV-48PRO AV-48PROX



### INSTRUCTIONS

CONNECTING OTHER  
EQUIPMENT

28

OTHER  
ITEMS

29

VIEWING TEXT

24

BASIC OPERATION

15

GETTING STARTED

6

INTRODUCTION

5

Thank you for purchasing this JVC rear projection television.  
To ensure your complete understanding, please read this instructions thoroughly before operation.  
• Screen displays and illustrations in this instruction may differ from the actual ones for better visibility.

# INTRODUCTION

# Before Installation

## Table of Contents

### INTRODUCTION

Before Installation ..... 3  
Product Information ..... 3  
TV ..... 3  
Front ..... 3  
Back ..... 3  
Remote Controller ..... 3

Name and Functions of Controls ..... 4  
Front ..... 4  
Back ..... 4

Names and Functions of Buttons ..... 5  
Front ..... 5  
Back ..... 5

Remote Controller ..... 6

### GETTING STARTED

Main Function ..... 6  
Turning the Power On/Off ..... 9

Watching TV Programmes ..... 9  
To watch a TV programme ..... 9  
Tuning in ..... 10

To preset channels (ASAT) ..... 11

To preset channels (Manual search) ..... 12

To skip unnecessary position numbers and MFT ..... 13

Maneuver the Tuning ..... 13

Adjusting the Picture Brightness ..... 14

To adjust the colour ..... 14

Adjusting the Picture Contrast ..... 14

Convenient Picture and Sound Control ..... 15

Sound mixing and remote calling ..... 15

Picture noise reduction and blue background ..... 16

Selectable picture and Selectable Sound ..... 17

To use the base boost ..... 18

To select the MTS/Multi Television Sound mode ..... 18

Using Other Menus ..... 19

ON/OFF Timer ..... 20

Selecting the Language for the OSD ..... 21

To select the language for the OSD ..... 21

### ADVANCED OPERATION

Watching Picture-in-Picture ..... 22

To display a sub-picture ..... 22

Various Picture-in-Picture operations ..... 23

Viewing TELETEXT (AV-4B/P only) ..... 24

Viewing Normal Text/Use of the Teletext Buttons ..... 24

To view normal text ..... 24

Fasttext and List function ..... 26

To view Fastext ..... 26

To view and list function ..... 26

To create and view the text pages in this LIST mode ..... 27

### CONNECTING OTHER EQUIPMENT

External Equipment Connections ..... 28

To connect Video and audio equipment ..... 28

### OTHER

A Guide to Simple Problem Solving ..... 29

Safety Instructions and Maintenance ..... 29

Specifications ..... 29

Back cover ..... 29

### To Identify your TV

This manual applies to the two models described below and there are slight differences among them.  
Before entering the TV, please make:  
— the model number of your TV;  
— what it is equipped with your TV according to the table below.

### Difference table

	Model AV-4B/P	Model AV-4B/P	Model AV-4B/P	Model AV-4B/P
Overview of the Remote Controller				
Telext				
Equipped				

The remarks are given using the model with maximum functions.

# Features

## AV terminals for external equipment connection

Three sets of video/audio inputs are located on the rear. The Video/Audio Input 1 is located on the front as well as the rear.

Two SVIDEO terminals on the rear (video/audio Input 1 and 3) and front on the front (video/audio Input 3).

One set of monitor output port terminals.

One set of dual audio output terminals.

Allow one-touch selection of your favorite picture quality and tone quality among three phases

modes and one user mode.

**NFCAM (BG/B and German (BG) stereo/bilingual broadcasts receivable**

PIP (Picture-in-Picture)

Show two different pictures on the screen simultaneously. TV programme and the other from an external video source or another TV programme, with the two Built-In VHS/VGA TV tuner.

**OFF/timer and ON/timer**

Turns off the TV automatically and will turn it back on at a preset time.

**TELETEXT/FASTTEXT (AV-42PF9 only)**

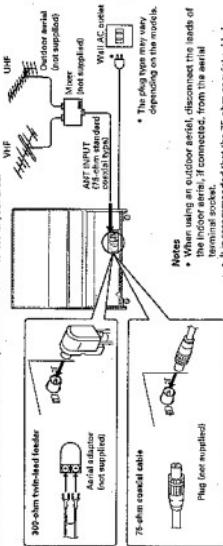
If a vacant channel is turned on or TV broadcast for a day is finished, the TV will automatically turn off after about 15 minutes. However, if the OFF-time is operating, it takes precedence. This Auto-Power-Off feature does not operate in a VIDEO or line background OFF mode.

**No-Signal/Mute**

When the unit receives a TV signal from the aerial input (T) which does not contain a video signal, the sound will muted. This No-Signal/Mute feature does not operate in the blue background OFF mode.

## To connect the aerial

Optimum reception of colour and signal will generally mean that an outdoor aerial must be used. The exact type and positioning of the aerial will depend upon your particular area. Your dealer or service personnel can best advise you on which aerial to use in your area.



Notes

- \* The plug may be user supplied on the model.
- \* When using an outdoor aerial, disconnect this leads of the indoor aerial if connected, from the aerial terminal.
- \* It is recommended that the 75-ohm coaxial cable be used to eliminate interference and noise which may occur due to radio wave conditions.
- \* That aerial cable should not be bundled with the power cord and the lines.

# Installation

## CAUTION: Avoid displaying stationary images on your TV screen for an extended period of time. Stationary patterns generated by the TV display, computer displays, TELE-TEXT, etc., can become permanent by leaving a mark on the screen. If it is a static image, use your TV's freeze function to direct still images. If it is a moving image, use your TV's scroll function to move the image across the screen. Never leave the brightness and contrast settings at their maximum for long periods of time. Never leave the screen in a dark room for long periods of time.

- TOTAL darkness or a reflection on the picture screen may cause eyestrain. Soft and indirect lighting is recommended for comfortable viewing.
- AVOID excessive warm locations to prevent possible damage to the cabinet or components.
- DANGER: VOL. AC THD V = 420 V. 50/60 Hz

## Precautions when moving and installing the unit

This Projection Television is provided with seven feet to assist in moving, with the object of reducing a strain on the neck of the user. During use, as a part of the time, it may get strained when the user is moved. So, take care.

• When the user is in the projection television, make sure of a place where it is not exposed to direct sunlight or a strong light, or one that reflects light. Never leave the television in a car or near a window during the day. Never leave the television in a car or near a window during the day.

• When the user is in the projection television, make sure of a place where it is not exposed to direct sunlight or a strong light, or one that reflects light. Never leave the television in a car or near a window during the day.

• Center tray

Using the ATT (attenuator switch) (See page 5.)  
When visual disturbance occurs, set the ATT switch to On using a small screwdriver.

## To prepare the Remote Controller

### Battery installation

- 1 Remove the battery cover.
- 2 Insert two size AAA batteries matching the + - polarities of the battery in the compartment.



- \* The battery life should be about one year under normal use.
- \* When a Remote Controller will not be used for a long period of time or when the batteries are worn out, remove the batteries to prevent leakage.
- \* Do not throw the batteries into a fire. Dispose of used batteries in a specified manner.
- \* Do not drop, dampen or disassemble the Remote Controller.

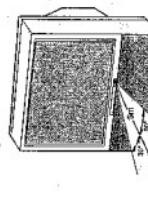


## Notes

- \* When using an outdoor aerial, disconnect this leads of the indoor aerial if connected, from the aerial terminal.
- \* It is recommended that the 75-ohm coaxial cable be used to eliminate interference and noise which may occur due to radio wave conditions.
- \* That aerial cable should not be bundled with the power cord and the lines.

## Notes for remote operation

### Effective range

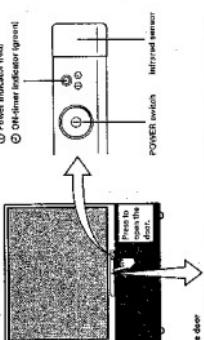


- \* The battery life should be about one year under normal use.
- \* When a Remote Controller will not be used for a long period of time or when the batteries are worn out, remove the batteries to prevent leakage.
- \* Do not throw the batteries into a fire. Dispose of used batteries in a specified manner.
- \* Do not drop, dampen or disassemble the Remote Controller.

## **Names and Functions of Controls**

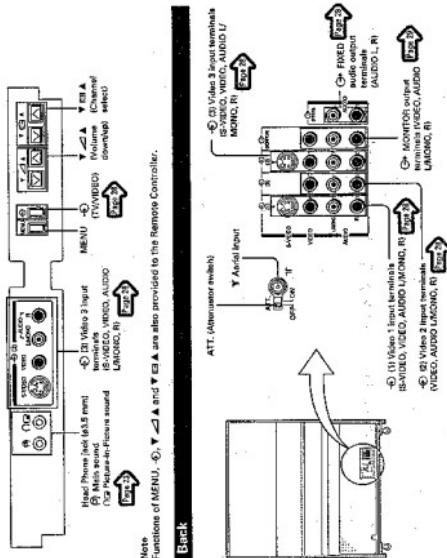
- The following describes the name of each part of the TV and Remote Controller.

Front

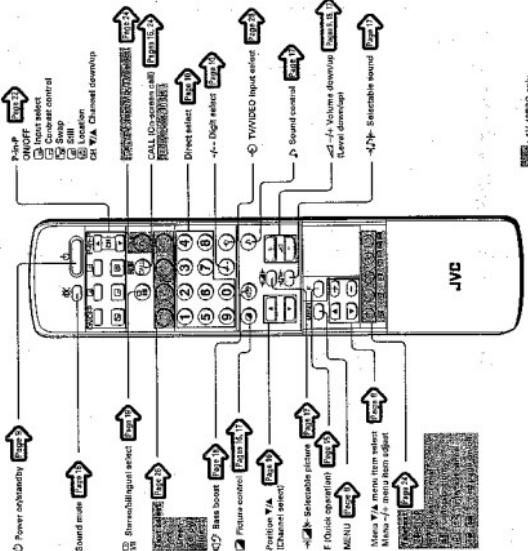


behind the door

Note Functions of MENU, Q, ▶ and ▶ are also provided to the Remote Controller.



Remote Controller



卷之三

GETTING STARTED.

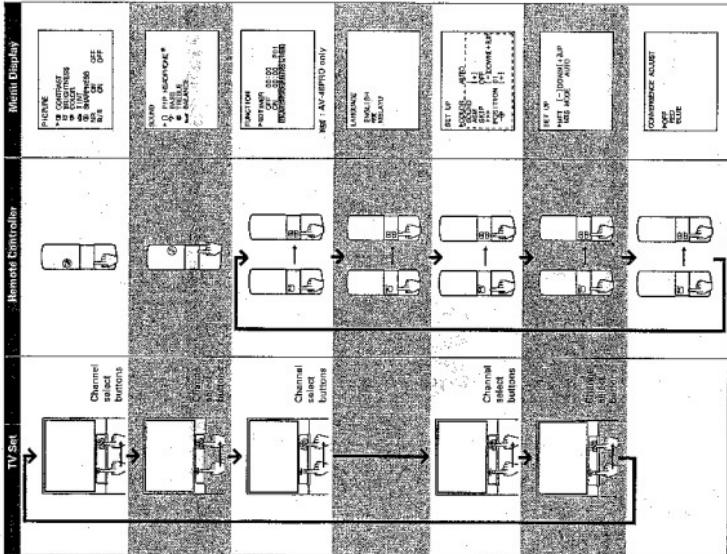
Menu Function

• Before watching the TV, please familiarize yourself with this method to use the menu function of this TV set.

GETTING STARTED

## Turning the Power On/Off

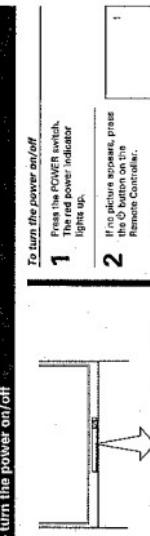
- The following describes how to turn the TV on/off using the TV's main switch and the



**Notes** To adjust or select [OFF/ON, etc.] each item, use the MENU →↓ button. The **[PIP]** item on the SET UP menu display does not appear in the video mode. The **[PIP HEADPHONE]** display appears only when PIP function is activated.

20

GETTING STARTED



turn the power on/off

To turn the power on/off

*To turn the power on/off*

**2** If no picture appears, press the button on the Remote Controller.

- You can also turn on the set by pressing one of the select buttons (0-9) instead of the  $\Theta$  button. By pressing the number (one digit only), where the channel you want to watch is stored, you can turn on the set and channel selection at the same time. [For the channel preset procedure, refer to pages 11 and 12.]
- When the remote controller is not at your hand, you can turn on the set by pressing the  $\nabla$ ,  $\Delta$  or  $\Theta$  button on the TV set.

**3** Adjust the sound volume with the  $\leftarrow\rightarrow$  buttons.

**4** To switch to the standby mode, press the  $\odot$  button.

**5** To turn off the monitor, press the POWER switch.

65

# Watching TV Programmes

- \* You can watch TV programmes being broadcast on the preset channels.

Technical terms in this manual

Channel: the number or abbreviation of the broadcast station frequency in each country (SBC, CH5, CH8, CH12, etc.)

Position: the number on your TV where channels are stored [0 - 99]

## To watch a TV programme

### To select a TV programme

**1** Select the desired programming.

Using the direct select buttons

- \* To select a one-digit position number:  
Press the  $\triangleleft\triangleright$  button to display "0" and 0 - 9 to select a number [0 - 9].
- \* To select a two-digit position number [00 - 99]:  
 $\triangleleft\triangleright$  to display "0", then press 0 - 9 to select a number [00 - 99].

Using the POSITION WA buttons

- Press POSITION  $\blacktriangleleft$  to select lower position.
- Press POSITION  $\blacktriangleright$  to select higher ones.

**2** Adjust the sound volume with the  $\triangleleft\triangleright$  buttons.

Using the POSITION WA buttons

- Press POSITION  $\blacktriangleleft$  to decrease the volume.
- Press POSITION  $\blacktriangleright$  to increase the volume.

### If the colour or sound of a certain channel is abnormal!

The colour of sound system

- Press the MENU WA button to call up the SET UP menu on the right and change the setting as follows:  
For the systems in each country, refer to page 30.

- \* When the colour of the picture is abnormal  
Press the MENU WA button to move the cursor  $\blacktriangleright$  to COLOR and select a correct colour system with the POSITION  $\blacktriangleleft\triangleright$  buttons.  
AUTO, PHASE, DYNAMIC and 3SHFTSC will appear cyclically.
- \* When the sound is abnormal  
Press the MENU WA button to move the cursor  $\blacktriangleright$  to SOUND and select a correct sound system with the POSITION  $\blacktriangleleft\triangleright$  buttons.  
1, DKE, M and G will appear cyclically.

- After presenting  
Colour picture on preset channels by pressing the POSITION  
WA button, the colour of a certain channel is not good, re-select the channel using the ASM, MANUAL SEARCH  $\blacktriangleright\blacktriangleright$  or MFT function. (See pages 12 and 13).  
If the colour of a certain channel is abnormal, the automatic colour system selection (AUTOD) may have been activated. If the colour of a certain channel is not good, re-select the channel using the ASM, MANUAL SEARCH  $\blacktriangleright\blacktriangleright$  or MFT function. (See pages 12 and 13).

Preset the channels using the ASM (Automatic Search System). (See page 30)

# Tuning in

- \* First, use the ASM (Automatic Search Memory) function to preset all the active channels.

The more you preset the more channels with the same broadcast frequency you can tune in.

This section shows how to tune in channels using mainly the Remote Controller. You can also perform the system select, ASM, MANUAL SEARCH  $\blacktriangleright\blacktriangleright$ , MFT and SKIP operations using the buttons on the TV set. See page 8.

## To preset channels [ASM]

### ASM (Automatic Search Memory)

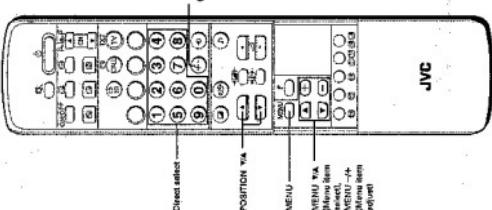
**1** Select the first position number you want the ASM to start presenting from with the POSITION WA buttons or the direct select buttons.

**2** Press the MENU button repeatedly to call up the SET UP menu on the screen.

**3** Confirm that "COLOR" is set to "AUTO" and "SOUND" is set to proper system. If not, press the MENU WA button to move the cursor  $\blacktriangleright$  to "COLOR" or "SOUND", then press the POSITION  $\blacktriangleleft\triangleright$  buttons to select the proper system. (See page 30)

**4** Press the MENU WA button to move the cursor  $\blacktriangleright$  to "ASM".

**5** Press the MENU + button to start the ASM active channels will be preset automatically. When presenting is complete, the initial position number will reappear.



JVC

# GETTING STARTED

## Tuning in (continued)

- Use the MANUAL SEARCH button to select channels except the present with the ASK function.
- If you would like to preset channels or specific channels to the channel number one by one, it is convenient to set the channel numbers to the same position numbers using MANUAL SEARCH (→) and SKIP functions.

### To preset channels (Manual search)

Manual search (→)

1 Selected a desired position number with the POSITION WA or direct select buttons.

- Press the MENU button repeatedly to call up the SET UP menu on the screen.
- Press the MENU WA button to move the cursor (→) to "SET UP".
- Press the POSITION WA buttons to move the cursor (→) to "SEARCH".
- Press the POSITION WA buttons to move the cursor (→) to "SEARCH".

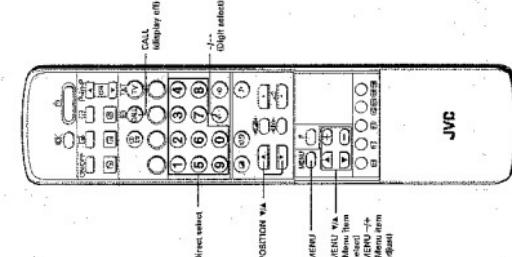
The POSITION WA buttons for channel selection are highlighted.

- When the desired channel is shown, press the POSITION WA buttons to move the cursor (→) to "SEARCH".
- Press the POSITION WA button to move the cursor (→) to "SEARCH".

The POSITION WA buttons for channel selection are highlighted.

- When the desired channel is shown, press the POSITION WA buttons to move the cursor (→) to "SEARCH".
- Press the POSITION WA buttons to move the cursor (→) to "SEARCH".

The POSITION WA buttons for channel selection are highlighted.



### To skip unnecessary position numbers and MFT (Manual Fine Tuning)

MFT (Manual Fine Tuning)

The adjustments below are not necessary under normal conditions. However, in cases of inferior broadcast conditions where adjustment is necessary for better picture, adjust the tuning with the MFT (Manual Fine Tuning).

- Select the channel you want to fine-tune with the POSITION WA buttons or direct select buttons.
- Press the MENU button. Press the POSITION WA buttons on the screen.
- Press the POSITION WA buttons to move the cursor (→) to "MFT".
- Press the POSITION WA buttons to move the cursor (→) to "MFT".

- Press the POSITION WA buttons to call up the SET UP menu on the screen.
- Press the POSITION WA buttons to move the cursor (→) to "MFT".
- Press the POSITION WA buttons to move the cursor (→) to "MFT".

- Press the POSITION WA buttons to move the cursor (→) to "MFT".
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GETTING STARTED

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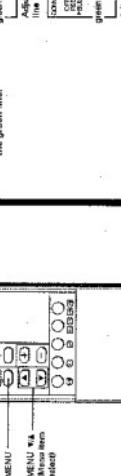
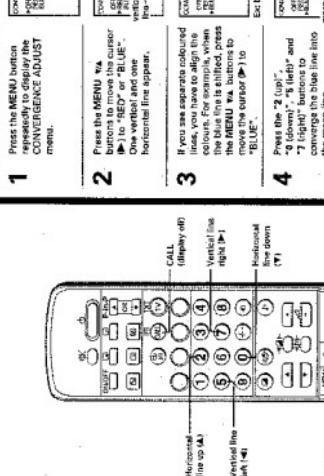
# Adjusting the Colour Convergence

This projection TV uses three sets of TV tubes: a red one, a green one, and a blue one. In order to get a clear picture, the three sets of tubes have to converge to form a full colour picture. You can easily adjust the convergence by using the **POSITION WA** buttons.

Your dealer should adjust the colour convergence when your TV is delivered. However, convergence may drift over time or if you move the TV. If you can see clear images on the screen, skip this procedure.

## To align the colour

### To check and align the colours



- 5** When you select the red line, press the POSITION WA buttons to move the cursor to 'RED'. Then, repeat step 4.

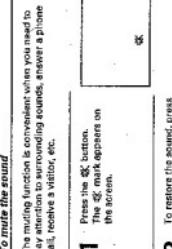
### To end the convergence adjustment

- 1 Press the MENU button to move the cursor to 'OFF'. The vertical and horizontal lines disappear.
- 2 Press the CALL button or the CALL button.

# Convenient Picture and Sound Controls

## Sound muting and on-screen calling

### To mute the sound



- 1** Press the CALL button.  
**2** The 'CALL' mark appears on the screen.

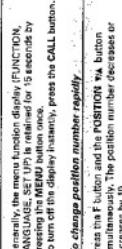
### To retain the on-screen display



- 1** Generally, the position number and the 'CALL' (stereo) or 'UH (Bilingual)' position indicator will disappear within 5 seconds once the position number has been displayed.

- 2** To return to the automatically-disappearing mode, press the CALL button again.

### To turn off the menu function display instantly



- 1** To turn off the menu function display (FUNCTION, POSITION WA, POSITION SW, etc.), press the CALL button.

- 2** To return to the automatically-disappearing mode, press the CALL button again.

### To change position number rapidly

Press the F button and the POSITION WA button simultaneously. The position number decreases or increases by 10.

### To change the volume rapidly

Press the F button and the POSITION WA button simultaneously. The volume changes rapidly.

# Convenient Picture and Sound Controls

(continued)

## Picture noise reduction and blue background

### To reduce the picture noise

If the signal being received is weak and the picture is blurry, activate the noise reduction to improve this picture.

- 1** Press the **■** button repeatedly to move the cursor  $\blacktriangleright$  to "NR".

- 2** Press the  $\triangle/\nabla$  buttons to select "ON".

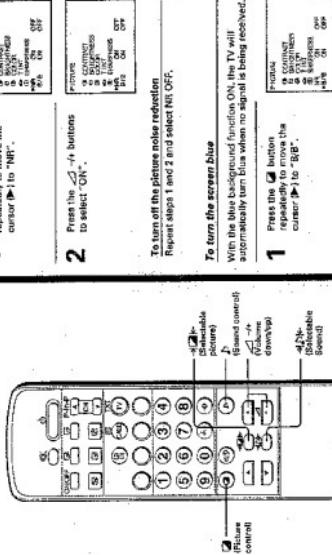
To turn off the picture noise reduction  
Repeat steps 1 and 2 and select NR OFF.

### To turn the screen blue

With the blue background function ON, the TV will automatically turn blue when no signal is being received.  
Press the **■** button repeatedly to move the cursor  $\blacktriangleright$  to "BB".  
**1** Press the  $\triangle/\nabla$  buttons to select "ON".

- 2** Press the  $\triangle/\nabla$  buttons to select "BB".

To turn off the blue background  
Repeat steps 1 and 2 above and select BB OFF.



No.51281

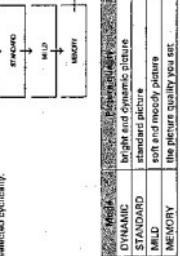
## Selectable picture and Selectable sound

### To select the picture mode

You can select the picture quality instantly among three preset modes and one user-set mode.

Press the  $\triangle/\nabla$  button to select the desired picture quality.

DYNAMIC, STANDARD, MILD and MEMORY User-set can be selected cyclically.

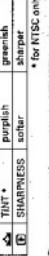


### To select the sound mode

You can select the sound quality instantly among three preset modes and one user-set mode.

Press the  $\triangle/\nabla$  button to select the desired sound quality.

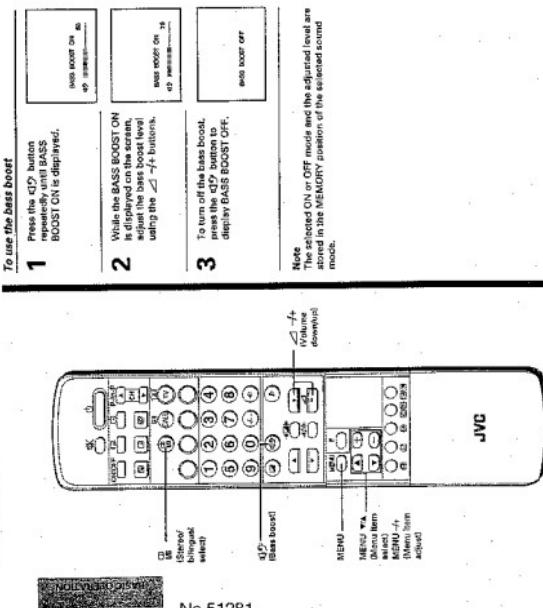
MEMORY User-set, THEATER and HALL can be selected cyclically.



### The adjusted level is stored in the MEMORY position.

# Convenient Picture and Sound Controls (continued)

## To use the bass boost



Note  
The selected ON or OFF mode and the adjusted level are stored in the MEMORY position of the selected sound mode.

### Note

- Press the MENU button to switch between "AUTO" and "MTS".
- Press the MENU button to switch between "MAIN" and "SUB".
- Press the MENU button to switch between "MAIN" and "MONO".

Note  
If you receive noise or interference from a station being broadcast, set the MTS mode to "MONO". Noise will be reduced and reception will improve.

- Press the MENU button to switch between "MAIN" and "SUB".
- Press the MENU button to switch between "MAIN" and "MONO".

## To select the MTS [Multi Television Sound] mode and the stereo/bilingual mode

### Setting the multi television sound (MTS) mode

The unit receives both music and bilingual broadcasts transmitted either via NICAM or German stereo bilingual broadcast system.

#### AUTO mode

The "AUTO" setting of the MTS mode automatically recognises stereobilingual programs depending on the broadcast signal.

- Press the MENU button repeatedly to call up the SET UP menu on the screen.
- Press the  $\Delta$ - $\nabla$  buttons to move the cursor  $\blacktriangleright$  to "MTS".

- Press the MENU button to switch between "MAIN" and "SUB".
- Press the MENU button to switch between "MAIN" and "MONO".

### Bilingual programmes

- When a bilingual programme is received, "12" appears.

**12**

**CD II**

**CD III**

**Main sound**

**Sub sound**

**CD II**

**Sub sound**

**Main sound**

### Setting the stereo/bilingual mode

- Press the  $\Delta$ - $\nabla$  buttons to call up the SET UP menu on the screen.

**12**

**CD II**

**CD III**

**Main sound**

**Sub sound**

**CD II**

**Sub sound**

**Main sound**

## Using Other Menus

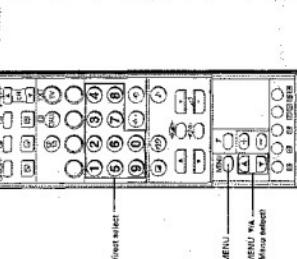
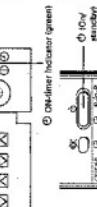
# Selecting the Language for the OSD (On-Screen Display)

### ON/OFF timer

#### To turn off the TV automatically (OFF timer)

With the OFF timer, the TV will automatically switch to standby mode at a preset time.

- Press the MENU button repeatedly to call up the LANGUAGE selection menu.
- Press the **W/A** button to select OFF/TIME.



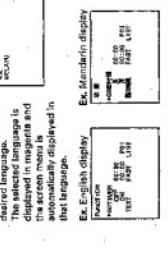
#### To select the language for the OSD

Use this function to switch the language for the OSD to either English, Mandarin or Malay.

#### To select the language for the OSD

Press the MENU button repeatedly to call up the LANGUAGE selection menu.

- Press the **W/A** button to select OFF/TIME.
- Press the **W/A** button to select the language you want.



#### To turn on the TV automatically (ON timer)

With the ON timer, the TV will automatically turn on to a preset channel at a preset time.

- Press the MENU button repeatedly to call up the LANGUAGE selection menu.
- Press the **W/A** button to select ON/TIME.



- If you enter an incorrect number while setting the ON/OFF timer, the screen will return to the direct select menus.  
Note  
Blancer: At the same time, the direct select menus will be cleared.  
Note  
Blancer: The minimum presetable time for the ON/OFF timer above is two hours and position number to 8000-P00.

- Press the **C** button to switch the TV to standby mode.
- At the present time, the TV will turn on automatically.

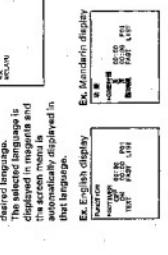
- To cancel the ON/OFF timer:  
Press the POWER switch to turn off the TV or in step 3 above set the ON/TIME and position number to 8000-P00.

#### BASIC OPERATION

#### To select the language for the OSD

Press the MENU button repeatedly to call up the LANGUAGE selection menu.

- Press the **W/A** button to select OFF/TIME.
- Press the **W/A** button to select the language you want.



JVC

# Watching Picture-in-Picture

The unit is capable of displaying two pictures simultaneously. This is called this PICTURE-IN-PICTURE function. A TV picture or a picture from external source equipment such as VTR can be displayed as a sub-picture.

## To display a sub-picture

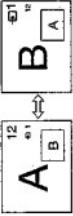
### To display a TV picture as a sub-picture

- Turn on the TV and select the desired programme.
- Press the P-in-P ON/OFF button. A sub-picture will appear on the screen.
- Press the P-in-P CH ▲▼ button to select the desired programme for the sub-picture.
- Press off the sub-picture, press the P-in-P ON/OFF button again.

### Various Picture-in-Picture operations

#### To switch the main and sub-pictures

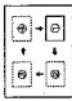
Press the **[SUB]** button when a sub-picture is displayed. The main and sub-pictures are exchanged. Press the button again to switch again.



Note: If the main picture is in the Teletext mode, the Teletext mode will be cancelled by pressing the **[SUB]** button. [Teletext] is featured only for AV-AEPRO.

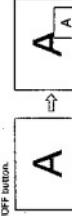
#### To change the position of the sub-picture

Press the **[SUB]** button repeatedly when a sub-picture is displayed. The display position of the sub-picture will change in order **[①]** to **[④]**.



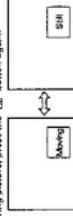
#### To display a frozen frame of the main picture as a sub-picture

When the sub-picture is displayed, press the **[SUB]** button. The main picture is displayed as a frozen frame. Press the **[SUB]** button again to cancel the frozen frame. To turn off the sub-picture, press the P-in-P ON/OFF button.



#### To freeze the sub-picture

Press the **[SUB]** button when a sub-picture is displayed. The sub-picture will be a still picture. To return to a moving picture, press the **[SUB]** button again.



Notes:

If there are no signals for the main and subpictures or if the signals are weak, the Picture-in-Picture function does not work correctly.

If the sizes of the main picture and subpicture are different, the size of the subpicture may slightly differ and the quality of the subpicture may be impaired.

The Teletext cannot be displayed as the sub-picture.

[Teletext] is featured only for AV-AEPRO.

#### To adjust the contrast of the sub-picture



ADVANCED OPERATION

No.51281

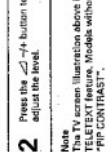
#### To adjust the contrast of the sub-picture



ADVANCED OPERATION

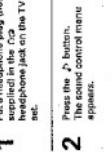
No.51281

#### To adjust the contrast of the sub-picture



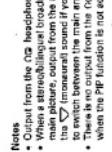
ADVANCED OPERATION

#### To listen to the sound of sub-picture



ADVANCED OPERATION

#### To listen to the sound of sub-picture



ADVANCED OPERATION

Notes:  
• When the **[PnP]** headphone jack is not inserted, a stereo sound is output from the speakers on the main unit.  
• When a stereo headphones jack is connected on the main unit, output from the **[PnP]** headphones jack is muted.  
• The **[PnP]** headphones sound is output from the **[PnP]** headphones jack if you press the **[PnP]** button to switch between the main and sub pictures.  
• There is no output from the **[PnP]** headphones jack when the **[PnP]** function is not activated.





**CONNECTING OTHER EQUIPMENT**

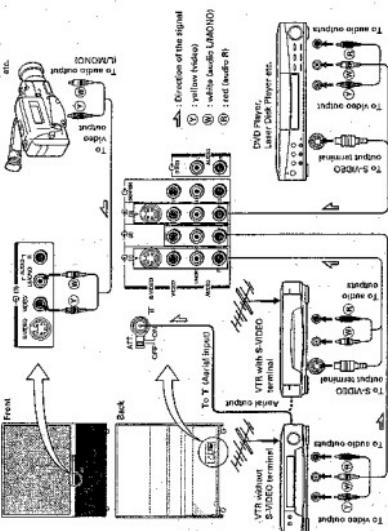
# External Equipment Connections

- The following describes how to use and connect the TV with other AV equipment.  
Refer to the owner's manual of the equipment to be connected as well.

to connect video and audio equipment

can connect video equipments such as a VTR and video camera to this TV and enjoy the high quality

our video equipment has an S-VIDEO output terminal (special S-VIDEO type), connect it to the S-VIDEO input terminal (special S-VIDEO type) of the unit. If not, connect it to the video terminal (phone type).



WILHELMUS DE WIT

**4 Time colour or video capture information**

The colour system setting may be incorrect. Press the MENU button repeatedly to display the menu on the right. Confirm that COLOR is set to "AUTO". If this is not "AUTO", switch it to "AUTO".

40

**Note on the S-VIDEO terminal**

1. Connect either the S-VIDEO input terminal or VIDEO input

Connect either one video input terminal or VIDEO INPUT terminal, whichever terminal is used. Do not connect both of these terminals.

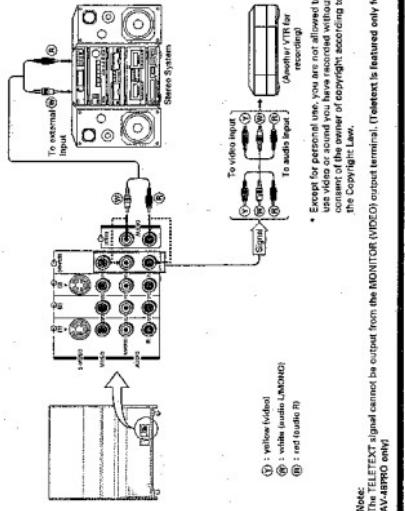
As regards the input terminals of **Q12**, connect either the front or rear terminals but not both.

Connect on the video 3 VIDEO terminal.

Connect either the video 3 VIDEO terminal on the rear.

To connect video and audio equipment (continued)

You can connect a stereo system to the MONITOR and FIXED AUDIO output terminals (pinno 1/2) on the TV to enjoy a high-quality sound from the stereo system. The MONITOR output terminal's output, the video and audio signals being monitored on the TV. The output audio signal level is fixed.



卷之三

EQUIPMENT  
CONNECTING OTHER

29

# A Guide to Simple Problem Solving

\* Before calling service personnel, please check the following chart for a possible cause to the trouble you are experiencing.

## Safety Instructions and Maintenance

\* Be sure to observe the following precautions to ensure safe use of this unit.

### Warning

Condition	Action
Power is not run on.	Be sure the power cord is plugged in.
No sound	Headphones may be plugged in.
Poor colour/picture	May be the misadjustment for contrast, colour and tone.
Spots appear on the screen.	May be emanating from ears, motorcycles, electric trains, high tension lines, room lights, hair dryers, etc.
Lens appears on the screen.	May be a tamming item like TV receivers, personal computers, and TV games, as well as interference from radio station.
Double or right images	May be due to broadcast waves reflected from mountains or buildings.
Snowy picture	Check if the direction of this antenna has been changed because of strong wind, etc.
Remote Controller does not work.	The antenna of the Remote Controller may be disconnected. The batteries in the Remote Controller may have exhausted. The batteries may be improperly installed.

### The following are not failures

Condition	Action
The cabinet clicks.	The clicking is a cracking sound produced when the cabinet expands or contracts due to changes in the temperature. This will not affect the picture or sound.
Unevenness in colour sometimes develops in part of the screen.	If the screen is set brightly, such unevenness in colour may occur depending upon the nature of the picture. The proper colour can be restored by reducing the contrast. Consult your local Dealer.
Remote Controller does not work.	

### Broadcast Transmission Systems in Each Country

Country	System	Notes
Sabah, Sarawak, Brunei, Oman, Qatar, United Arab Emirates, Yemen, etc., Indonesia, Malaysia, Singapore, Thailand, etc., China, etc.	PAL	BIG
Hong Kong	PAL	DIK
Iraq, Islamic Republic of Iran, Lebanon, Saudi Arabia, etc., Russia Federation, etc., Kazakhstan, etc.	SECAM	BIG
Oceania, Australia, New Zealand, etc., Republic of South Africa, etc., Africa, Argentina, Brazil, Uruguay, etc., South America, Chile, Colombia, etc.	NTSC	M
	FAR	I
	PAL	N
	PAL	M
	NTSC	M

Notes: \* "BIG" and "DIK" are displayed as "BIG" and "DIK" on the screen.  
PAL, SECAM and DIK are different colour broadcast transmission systems applicable to different countries. 433MHz NTSC is used in special VTRs to playback NTSC recorded video tapes through PAL television.  
SECAM • NTSC 65 Mhz, 433MHz NTSC • NTSC 432 MHz  
• Refer to the Specifications table on the back cover to find the receivable television systems for this TV.

### Warning

When an malfunction occurs, or if smoke, or a strange smell comes from the unit, turn off the power and remove the plug from the outlet immediately.	
Spots appear on the screen.	
Lens appears on the screen.	
Double or right images	
Snowy picture	
Remote Controller does not work.	

Do not set on top of this unit any object or container that might spill liquids or small objects into this unit.	
When there are any malfunctions, such as when there is no screen image or no sound output.	
Do not set on top of this unit any object or container that might spill liquids or small objects into this unit.	
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No entry! Objects inserted or placed on this unit inside the unit through ventilation holes and other places.	
If the unit makes a fire or an electric shock.	
If metal objects are inserted inside the unit, turn the power off, remove the plug from the outlet immediately and contact a service technician.	
If the unit is damaged or the cabinet is damaged, turn the power off through ventilation holes and other places.	
If the unit makes a fire or an electric shock.	

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If metal objects are inserted inside the unit, turn the power off, remove the plug from the outlet immediately and contact a service technician.	
If the unit is damaged or the cabinet is damaged, turn the power off through ventilation holes and other places.	
If the unit makes a fire or an electric shock.	

# Safety Instructions and Maintenance

(continued)

## Warning

Always connect the plug to an electrical outlet equipped with 110V to 240V AC.  
Do not use the unit outside the specified voltage (110V to 240V AC).  
It may cause a fire or an electric shock.



Never watch television while driving or walking.  
The unit may drop or fall from which may cause injury or damage.



Do not place the unit in unstable position such as on a shaky table or on the car or truck while in motion.  
The unit may drop or fall from which may cause injury or damage.



Do not wash the unit in locations exposed to high humidity levels such as in a bathroom or close to a hot differ.  
This may cause a fire or an electric shock.



Do not remove the rear panel, cabinet or cover.  
There are parts containing high voltage which may cause electric shock.  
Contact a service technician for inspection, adjustment and repair of parts inside the unit.



Do not cut, break, modify, twist, bunch up or bend the cord or apply excessive force or tension to it.  
Do not place heavy objects on the cord or allow it to overheat as this may cause damage, fire or electric shock. Contact a service technician if the electrical cord is damaged.



## Warning

If there is thunder or lightning, do not touch the antenna wire.  
You may suffer an electric shock.



When dust has collected on the electrical plug connector, remove the plug from the outlet and clean off the dust.  
This dust may cause a fire due to the reduced insulation of the plug.



## Caution

Be sure the installation is correct.  
Be sure that the unit does not rest on the unit.  
For example, do not place the unit on the following manner.  
• Do not place the unit so that it is leaning upward, or on its side.  
• Do not place the unit so that it is leaning downward, or on its side.  
• Do not place the unit on a chair or bough shelf where the ventilation is poor.

- Do not place the unit on a carpet or blanket.
- Do not spread a blanket or curtain on top of the unit.
- Do not place the unit with the front of the unit where the ventilation holes are blocked, which may result in a fire.

Do not place the unit next to a active where it will be exposed to a high temperature such as inside a closed vehicle.  
A fire may result when the inside temperature increases.



Do not place the unit next to a active where it will be exposed to a high temperature such as inside a closed vehicle.  
A fire may result when the inside temperature increases.  
This may cause a fire or electric shock.



# Safety Instructions and Maintenance

(continued)

## Caution

**Do not place anything heavy on top of the unit.**  
This may cause it to become uneven, resulting in the unit falling over, dropping or causing an injury.



**Always lock the castor wheels of the main unit.**  
The main unit is equipped with castor wheels on the bottom. If castor wheels are not locked securely, it may fall over and cause an injury.



**Precautions for carrying the unit.**  
Always use care or move carefully to move this television because it is extremely heavy.  
When moving this television, be sure to remove the plug from the wall outlet and disconnect the antenna, connection lines between other equipment, external connection lines and any stabilizer bars.



**Usage Precautions**  
Do not stand or sit on top of the unit.  
Be especially careful in households with small children to prevent them from climbing on top of the television. If it may move, fall over, break, become damaged or cause an injury.



**Do not pull on the television cord when removing the plug from the wall outlet.**  
Always hold the plug firmly when removing it. If the electric cord is bent, the cord may become damaged and fire or electric shock may occur.



## Caution

**Never restart or remove the television cord with wet hands.**  
This may cause electric shock.



**Never place the main unit or television cord near a heater.**  
The surface of the cabinet or electrical cord may melt and result in fire or electric shock.



**When the television will not be used for a long period of time such as during vacation or travel, remove the power cord plug from the wall outlet.**  
If the result of the insulation on the power cord is reduced by dust build up,



**Technique knowledge and experience are required for the antenna construction. Contact a service technician for further information.**  
\* Separate the antenna unit if it is separated from the power supply line. If the antenna falls down or drops, it may cause injury or electric shock accidents.



When working on the antenna connection, handle the antenna with care to avoid damage.

## Maintenance Information

**Disconnect the power cord plug from the electrical outlet when performing cleaning or maintenance.**  
Electric shock may occur if the plug is not disconnected.

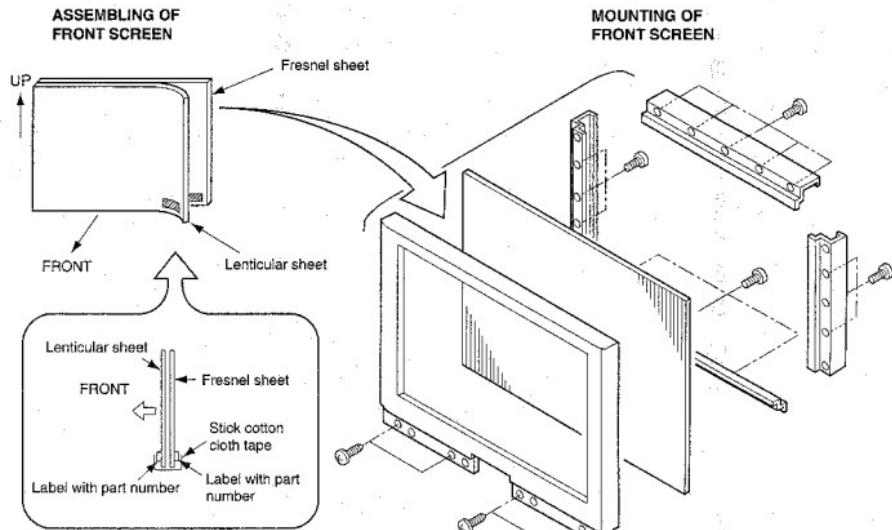


**After purchase, consult a service technician once a year for routine maintenance and cleaning. A dust accumulation for a long period of time in the inside of the main unit without cleaning, this may result in fire or damage. The cleaning is particularly effective before a rainy season, which is a period of high humidity. Contact a service technician for further information regarding the cleaning costs.**



# SPECIFIC SERVICE INSTRUCTIONS

## SCREEN AND MIRROR ALIGNMENTS



### CLEANING OF LENS AND MIRROR

**CAUTION :** Do not hold the optical system parts (lens and mirror) with bare hand to avoid finger-prints on the surface of those parts.

#### HOW TO CLEAN LENS AND MIRROR

1. Be sure to remove sand dust with an air brush, etc.
2. When it is stained slightly, breathe upon it and wipe away with the specified cleaning cloth.

For other stains than the above, wipe the stains away with the specified cloth into which a cleaning liquid has been soaked.

Cleaning liquid ..... **LENS LUSTER**

#### HOW TO CLEAN SCREEN

When cleaning the screen, use a soft cloth so as not to damage the screen.

1. Wipe the stain away with a diluted neutral detergent soaked cloth.
2. Wipe the detergent away with a water soaked cloth.
3. Wipe the screen with a dry cloth to remove moisture on the screen.

**Note :** - Absolutely do not use alcohol, benzine, thinner, etc. for cleaning in order not to wipe away the black print on the surface.

**WARNING:** BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRE-CAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 3 OF THIS MANUAL.

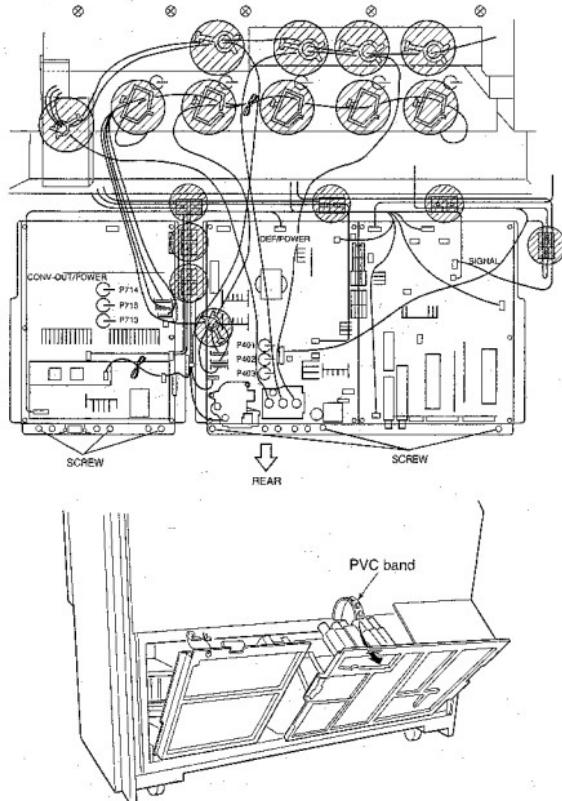
## SERVICE POSITION

In order to assure the performance, processed wires shall be replaced after the repair work.

Work procedures are as follows:

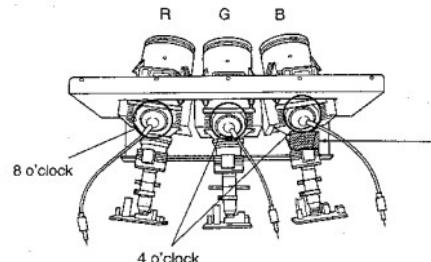
1. Remove the back board. (See page 60.)
2. Remove lead wires from 17 holders in  as illustrated.
3. Draw out the chassis.
4. Insert the front edge of the chassis into the groove where the back board has been inserted and make the chassis stand.
5. Put one screw on cabinet by depth of their length for fixing back board, and then, temporarily use them to hold the CONV/POWER chassis with wires tied to screws or insert the PVC band into the opening of main board frame to fix the main board chassis as shown below.

After repair work finished, replace it in the opposite procedure.

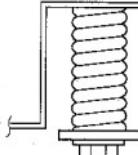


## CRT ASSEMBLY REPLACEMENT AND MOUNTING

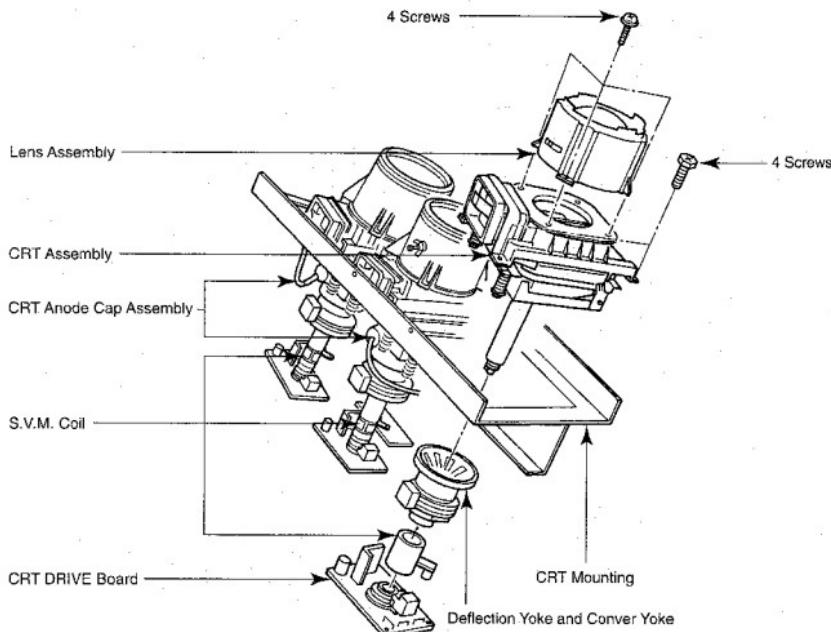
**CAUTION : DO NOT LOOSEN THE HEX HEAD BOLTS WITH SPRINGS (12 PCS), BECAUSE THOSE ARE FOR SEALING OF CRT COOLANT.**



### Attention Serviceman



The Hex Head Bolts with Springs. (see sketch) used on CRT assembly, are "NOT" Adjustment Screws DO NOT LOOSEN-FLUID LEAKAGE WILL OCCUR.



**Lens and Neck Components View**

#### TO REMOVE CRT (Same procedure for R, G, B)

1. Remove CRT DRIVE Board, S. V. M. COIL and DEF. YOKE from CRT.
2. Remove Lens Assembly.
3. Detach CRT Anode Cap from CRT.
4. Remove CRT Assembly from CRT Mounting.

#### CRT REPLACEMENT (Same procedure for R, G, B)

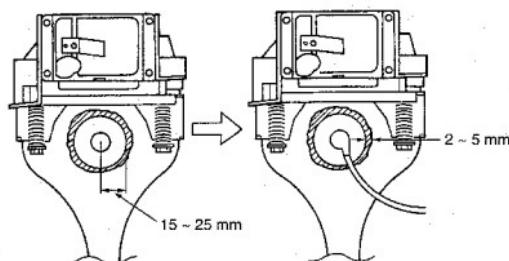
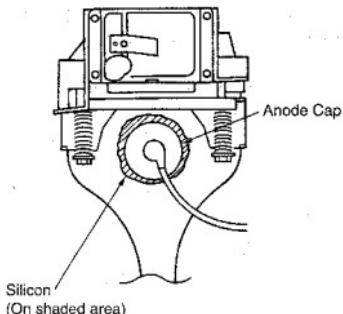
Reverse the removal procedures except the followings.

1. Anode Cable should be replaced with new one.  
See "SERVICING PRECAUTIONS" shown below.
2. Install silicon to the CRT, replace the Anode cable and put enough silicon again on around the Anode Cap as illustrated.

CAUTION: Align the Anode cable as illustrated on page 24.

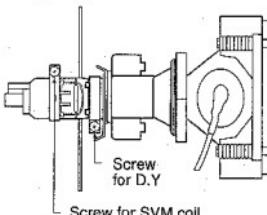
#### ADJUSTING PROCEDURE IN REPLACING CRT

1. R.G.B. CUTOFF (SCREEN VR) ADJUSTMENT (page 26.)
  2. R.G.B. FOCUS ADJUSTMENT (page 26.)
  3. PICTURE TILT ADJUSTMENT (page 27.)
  4. USER CONVERGENCE CENTER CHECK  
(page 11.)
  5. CENTERING ADJUSTMENT (page 27.)
  6. CONVERGENCE ADJUSTMENT (page 36.)
  7. WHITE BALANCE ADJUSTMENT (page 34.)
- Adjustments are complete.

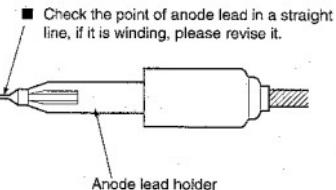


### SERVICING PRECAUTIONS

■ Do not use a magnetized screw driver for screws of Deflection Yoke and Velocity Modulation Coil to avoid magnetization of electron gun.  
Magnetization of electron gun will degrade basic function and result in unbalance of right and left shift of user static convergence, and result in no variable quantity.



■ When replacing the anode cap assembly (CRT) or anode lead assembly (F.B.T.), remove the anode lead holder from old one and attach the holder again to new anode lead.

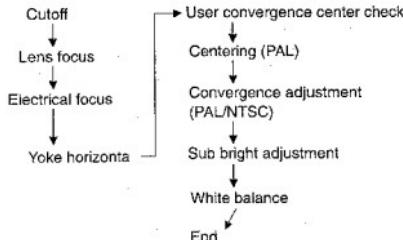


# SERVICE ADJUSTMENT

**WARNING:** BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 3 OF THIS MANUAL.

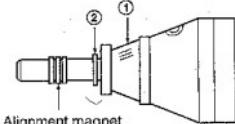
## PICTURE TUBE COMPONENTS ADJUSTMENT

### ADJUSTING PROCEDURE IN REPLACING CRT



\*TEST SIGNAL SELECTION page 31.

### DESCRIPTION OF NECK COMPONENTS



① Deflection yoke and convergence yoke.

The position on the neck is required most front (CRT funnel side) and the screw is fastened after rotating yoke adjusting picture tilt.

② Centering magnet

After adjusting picture tilt, picture position is finally fixed by this magnet.

In order to get maximum margin of user convergence control for center of screen, this magnet have to be used for center convergence adjustment.

### PREPARATION

Operate the receiver for at least 5 minutes.

### R, G, B FOCUS ADJUSTMENT

1. Select the adjustment mode. (See page 30.)
2. Press " $\rightarrow$ " button to display the built-in cross-hatch.
3. Press " $\leftarrow$ " and " $\uparrow$ " buttons to make the picture a single Red color.
  - $\square$  button ..... to erase Red color
  - $\leftarrow$  button ..... to erase Green color
  - $\uparrow$  button ..... to erase Blue color
4. Loosen the fasten screw and adjust Red lens focus to best focusing point of picture center. Then fasten the screw. (See Fig. a.)

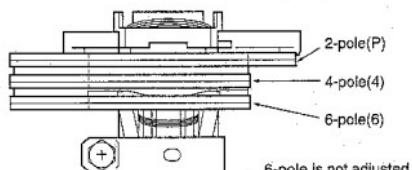


Fig. a

5. Adjust FOCUS VR "R" of FOCUS PAC to find best focusing point of picture center.

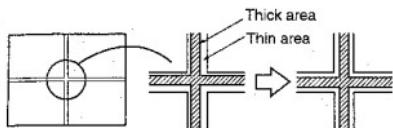
6. Repeat steps 3 to 5 for Green and Blue colors.

### ALIGNMENT MAGNET ADJUSTMENT (This Item will be made design modification (delete) without notice)

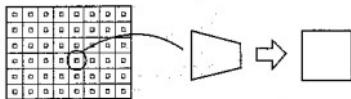


... 6-pole is not adjusted.  
(Cancelled condition)

1. Set the 2-pole, 4-pole and 6-pole magnets to cancelled condition.  
(To realize the cancelled position, set marking letters on tabs to match front to back.)
2. Receive test signal of white cross-bar.
3. Rotate Focus VR to just a little left from optimum focusing.
4. Adjust 2-pole magnet so that thick area of luminance is located to center of thin area of luminance.



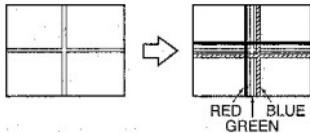
5. Rotate Focus VR counterclockwise to the just focusing.
6. Fix 2-pole magnet with adhesive.
7. Change test pattern to white cross-dot.
8. Rotate Focus VR to just a little right from optimum focusing.
9. Adjust 4-pole magnet for the square dot.



10. Rotate Focus VR counterclockwise for the just focusing.
11. Fix 4-pole magnet with adhesive.
12. Perform steps 1 to 11 for RED, GREEN and BLUE.

**Note:**

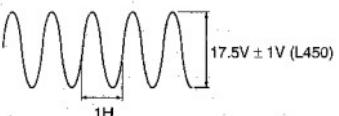
1. Before adjustment, displace previously red and blue of convergence by Convergence Menu in Set Up Menu for convenience.



2. This adjustment may be omitted due to design modification (Deletion of alignment magnet).
3. 6-pole magnet is no adjustment. Set it to cancelled condition.

**DYNAMIC FOCUS PARABOLA ADJUSTMENT**

1. Connect oscilloscope (10:1 probe) to terminal #2 of T400 and ground. (See Fig. C)
2. Turn on the TV set and adjust L450 (POWER DEF BOARD) for the peak-to-peak value of parabola wave as shown below.

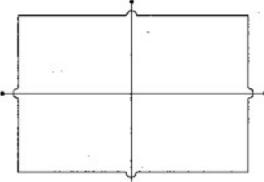


**PICTURE TILT ADJUSTMENT**

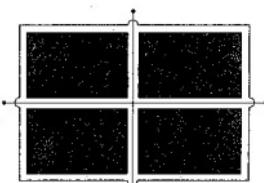
Rotate R, G, B deflection yoke so that picture becomes horizontal, then fasten screw.

**CENTERING ADJUSTMENT**

1. Stretch a thread between two center slots of screen edge (top and bottom, left and right).



2. Select the adjustment mode. (See page 30.)
3. Press TV/VIDEO button on the Remote Control to display the white cross-bar.



4. Adjust G centering magnet so that the cross-bar pattern center comes to screen center.
5. Perform HEIGHT adjustment. (See page 34.)
6. Perform VERT. LINEARITY adjustment. (See page 34.)
7. Perform WIDTH adjustment. (See page 34.)
8. Check whole quality of green line.
9. Adjust R, B centering magnet so that the cross-bar pattern center comes to screen center.

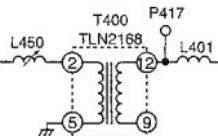
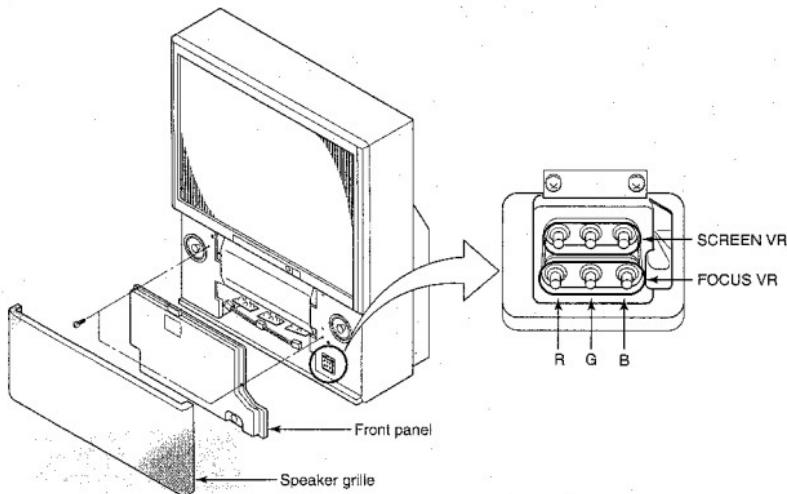


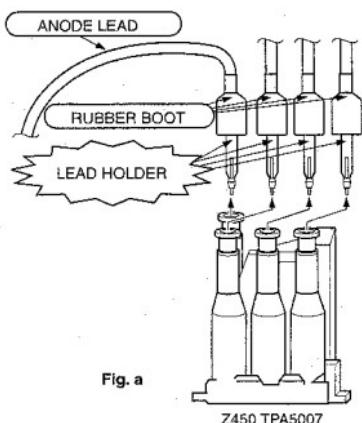
Fig. c

## LOCATION OF SCREEN AND FOCUS VR'S

To remove the Speaker grille and Front panel.



## REPLACEMENT OF HIGH VOLTAGE CABLE



- When replacing Anode Lead or Anode Cap with new one, remove Lead Holder from old lead as shown in figure below, and put it on new lead. Do not throw away Lead Holder.

**NOTE : THE LEAD HOLDER IS ATTACHED TO TPA5007 (Z450), BUT IS NOT ATTACHED TO ANODE LEAD AND ANODE CAP. RUBBER BOOT IS ATTACHED TO ANODE LEAD AND ANODE CAP.**

- Detaching Lead Holder

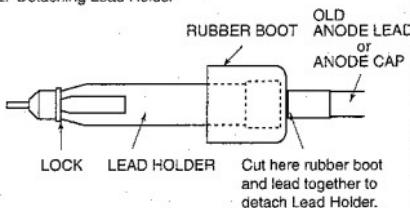


Fig. b

## CIRCUIT CHECKS

### HIGH VOLTAGE CHECK

**CAUTION:** There is no HIGH VOLTAGE ADJUSTMENT on this chassis. Checking should be done following the steps below.

1. Connect an accurate high voltage meter to the anode of the picture tube.
2. Turn on the receiver. Set the BRIGHTNESS and CONTRAST to minimum (zero beam current).
3. High voltage must be measured below ⑧ kV.

Refer to table 1 for high voltage. ⑧

(See SETTING & ADJUSTING DATA on page 41)

4. Vary the BRIGHTNESS to both extremes to be sure the high voltage does not exceed the limit under any conditions.

### CAUTION:

When the following parts fail, check the High Voltage after replacing.

Location No.	Name	Name
T461Z	Flyback Trans.	TFB3078ZD
D489	Zener Diode	MTZ13.6B
Q480	Transistor	2SC2023LF-4
Q483	IC	TA75458S
R435	Resistor	33k ohm, ±5%
R489	Resistor	3.3k ohm, ±5%
R490	Resistor	3.3k ohm, ±5%
R450	VR	1k ohm
C440	Capacitor	1000pF, ±3%
C443	Capacitor	6600pF, ±3%
C444	Capacitor	5100pF, ±3%

### ANODE VOLTAGE MEASURING METHOD

**CAUTION:** Take extra precaution when measuring this high voltage. High voltages are also present in surrounding circuit boards (CRT DRIVE assembly, DEFLECTION assembly, and POWER SUPPLY assembly).

1. Disconnect the FBT anode cable as outlined below. Measure high voltage at the point where the cable enters the FBT.
2. Holding the rubber cover firmly, turn it counterclockwise and check that the lock has been disengaged. (See Fig. b on page 28.)
3. Determine the extent of the rubber cover before disconnecting the cable.
4. Pull straight up the anode cable to disconnect.
5. When reconnecting the cable, proceed in the reverse order.  
After reconnecting, tug on the cable to check that it is secure.

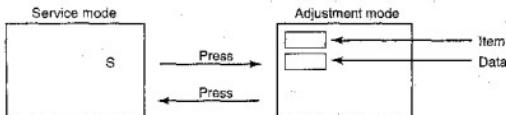
## SERVICE MODE (ADJUSTMENT MODE)

### 1. ENTERING TO SERVICE MODE

- 1) Press  button once on Remote Control.
  - 2) Press  button again to keep pressing.
  - 3) While pressing the  button, press MENU button on TV set.
- 

### 2. DISPLAYING THE ADJUSTMENT MENU

- 1) Press MENU button on TV.



### 3. KEY FUNCTION IN THE SERVICE MODE

The following key entry during display of adjustment menu provides special functions.

Screen adjustment mode ON/OFF:

- button (on TV)

Test signal selection :

- button (on Remote)

Selection of the adjustment items :

Channel / (on TV or Remote)

Change of the data value :

Volume / (on TV or Remote)

Adjustment menu mode ON/OFF :

MENU button (on TV)

Initialization of the memory (QA02) :

CALL + Channel button on TV ()

Reset the count of operating protect

circuit to "00":

CALL + Channel button on TV ()

"RCUT" selection :

1 button

"GCUT" selection :

2 button

"BCUT" selection :

3 button

"CNTX" (or "SCNT") selection :

4 button

"COLC" (or "SCOL") selection :

5 button

"TNTC" selection :

-- Color thickness correction

Convergence adj. :

6 button

Test audio signal ON/OFF (1kHz) :

note: Displayed differently as shown below, depending on the setting of the receiving color system.

Self diagnostic display ON/OFF :

7 button

COLP (PAL)

8 button

SCOL (NTSC)

9 button

COLS (SECAM)

CAUTION : Never try to perform initialization unless you have changed the memory IC.

#### 4. SELECTING THE ADJUSTING ITEMS

- 1) Every pressing of CHANNEL ▲ button in the service mode changes the adjustment items in the order of table-2.  
(▼ button for reverse order)

Refer to table-2 for preset data of adjustment model.  
(See SETTING & ADJUSTING DATA on page 41.)

#### 5. ADJUSTING THE DATA

- 1) Pressing of VOLUME ▲/+/- button will change the value of data in the range from 00H to FFH. The variable range depends on the adjusting item.

#### 6. EXIT FROM SERVICE MODE

- 1) Pressing POWER button to turn off the TV once.

#### ■ INITIALIZATION OF MEMORY DATA OF QA02 (CAT24C08P)

After replacing QA02, the following initialization is required.

1. Enter the service mode, then select any register item.
2. Press and hold the CALL button on the Remote, then press the CHANNEL ▲ button on the TV. The initialization of QA02 has been completed.
3. Check the picture carefully. If necessary, adjust any adjustment item above.  
Perform "Auto search Memory" on the owner's manual.

CAUTION: Never attempt to initialize the data unless QA02 has been replaced.

#### 7. TEST SIGNAL SELECTION

- 1) Every pressing of -○ button on the Remote Control changes the built-in test patterns on screen as described below in SERVICE MODE.

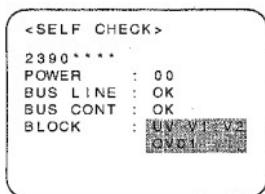
Signal off → NTSC signals (14 patterns)  
↑ PAL signals (14 patterns) ←

Signals	Picture
• Red raster • Green raster • Blue raster • All Black • All White	
• Black & White	
• Black cross-bar • White cross-bar • Black cross-bar on green raster	
• Black cross-hatch • White cross-hatch	
• Black cross-dot • White cross-dot	
• H signal (white) • H signal (black)	

\* The signals marked with ■ are not usable to display in the Test signal for some model.

## 8. SELF DIAGNOSTIC FUNCTION

- 1) Press "9" button on Remote Control during display of adjustment menu in the service mode.  
The diagnosis will begin to check if interface among IC's are executed properly.
- 2) During diagnosis, the following displays are shown.



- ① Part number of microcomputer (QA01)
- ② Operation number of protecting circuit ----"00" is normal.  
When indication is other than "00", overcurrent aplts to flow, and circuit parts may possibly be damaged.
- ③ BUS LINE CHECK ----"OK" is normal.  
"SDA1-GND" ----- SDA-GND short circuit.  
"SCL1-GND" ----- SCL-GND short circuit.  
"SCL1-SDA1" ----- SCL-SDA short circuit.
- ④ BUS CONT ----"OK" is normal.  
When indication shows "Q 000 NG", the device with the number may possibly be damaged.
- ⑤ BLOCK  
UV : TV reception mode  
V1 : VIDEO 1 input mode (+C1)  
V2 : VIDEO 2 input mode (+C2)

\* The items marked with ■ are not usable to display in the SELF DIAGNOSTIC FUTION for some model.

### ※SUPPLEMENT OF ⑤BUS CONT

"OK" ..... Normal

Display of Location Number (Ex. QA02) ... NG

(Failure place to be displayed)

QA02 NG, QS01NG, H001NG, QG01NG, QV01NG, Q302NG, QZ01NG, H002NG,  
QQ1NG, HY01NG, QY03NG, Qr04NG, QY05NG, Q701NG QT01NG

IN PIP UNIT

Note: The indication of failure place is only one place though failure places are plural. When repair of a failure place finishes, the next failure place is indicated. (The order of priority of indication is left side.)

Indicated color of mode now selected : Green and Red  
Indicated color of other modes : White

Green : Normal

Red : The microcomputer operates to provide judgement of no video signal. The red color is still indicated though the signal is input, failure may exist in input signal line including QV01.

QV01 : In case of indication green ---Normal  
In case of indication red with input signal---  
Failure may exist in output line including QV01.

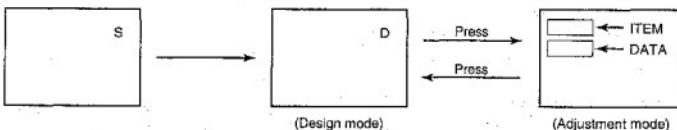
NOTE: Component which controls character display on screen is QT01 (TELETEXT IC). If this display function fails to operate due to damage in QT01, self-diagnosis procedure is as follows:

- (1) In case that power indicator is blinking with interval of 0.5 seconds, it means protecting circuit (Current-limiter) is operating, and circuit components may possibly be damaged. Check related components.
- (2) In case that power indicator is blinking with interval of 1 second, Protecting circuit does not operate, but a part of bus line does not operate normally. Check Bus line.

## DESIGN MODE

### 1. ENTERING TO DESIGN MODE

- 1) Select the Service mode.
- 2) While pressing CALL button on Remote
- 3) Press MENU button on TV.  
and press MENU button on TV.



When QA02 is initialized, items "OPT0" and "OPT1" of DESIGN MODE are set to the data of the representative model of this chassis family.

Therefore, because ON-SCREEN specification remains in the state of the representative of model. This model is required to reset the data of items "OPT0" and "OPT1".

### 2. SELECTING THE ADJUSTING ITEMS

Every pressing of CHANNEL ▼ button in the design mode changes the adjustment items in the order of table-3.  
(▲ button for reverse order)

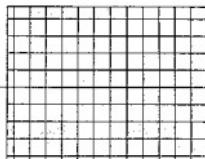
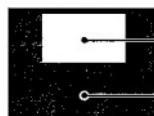
Refer to table-3 for data of design mode.

(See SETTING & ADJUSTING DATA on page 42.)

### 3. ADJUSTING THE DATA

Pressing of VOLUME ▲ or ▼ button will change the value of data.

## ELECTRICAL ADJUSTMENT

ITEM	ADJUSTMENT PROCEDURE
WIDTH (WID)	<p>1. Call up the adjustment mode display, then select the item <b>WID</b>.      2. Press the VOLUME ▲ or ▼ button to get the picture so the left and right edges of raster begins to lack.      3. Press the VOLUME ▲ or ▼ button to advance the data by 7 steps.      Note : Check the horizontal picture position is correct.</p>
VERTICAL LINEARITY (VLIN)	<p>1. Call up the adjustment mode display, then select the item <b>VLIN</b>.      2. Press the TV/VIDEO button on Remote until the cross-hatch pattern appears on the screen.      3. Press the VOLUME ▲ or ▼ button to obtain the picture of the best linearity</p> <div style="text-align: center; margin-top: 10px;">  <p>Center -</p> </div>
HEIGHT (HIT)	<p>1. Call up the adjustment mode display, then select the item <b>HIT</b>.      2. Press the VOLUME ▲ or ▼ button to get the picture so the top of raster begins to lack.      3. Press the VOLUME ▲ button to advance the data by 9 steps.      Note : Check the vertical picture position is correct.</p>
WHITE BALANCE (RCUT) (GCUT) (BCUT) (RDRV). (BDRV)	<p>Black and White pattern</p> <div style="text-align: center; margin-top: 10px;">  <p>High light area Adjust "RDRV" or "BDRV" to be white.</p> <p>Low light area Fine adjust "RCUT", "GCUT" or "BCUT" to be black.</p> </div> <p>1. Set user control to reset position.      ( CONTRAST → Max      BRIGHTNESS, COLOR, TINT → Center. )</p> <p>2. Call up the adjustment mode display, then select the item <b>RCUT</b>.      3. Adjust the data of items <b>RCUT</b>, <b>GCUT</b>, and <b>BCUT</b> to "40H".      4. Press the <math>\rightarrow</math> button on PJTV. (Y-MUTE : ON)      5. Gradually rotate R, G and B screen volume of FOCUS PAC clockwise or counterclockwise until the raster appears slightly on the CRT through the each lens, and leave them.      (Lookin to the lens in order to check the raster.)      6. Press the <math>\rightarrow</math> button on PJTV. (Return to Normal Picture)      7. Press the <math>\rightarrow</math> button on Remote, and select the Black and White pattern.      8. Adjust the data of items <b>RCUT</b>, <b>GCUT</b> and <b>BCUT</b> for proper white-balanced picture in low light area.      9. Adjust the data of items <b>RDRV</b> and <b>BDRV</b> for proper white-balanced picture in high light area.      10. Check the white balance in both low and high light areas.      If necessary, perform again steps from 8 to 9.</p>

## ADJUSTMENT OF VIDEO-CROMA SYSTEM (SERVICE MODE ADJUSTMENT)

Symbol	Name	Setting	Input signal	Measurement point	Instrument	Adjustment procedure	Adjustment standard
BELL	BELL FILTER		SECAM COLOR BAR	QQ01 #2 (TPM01)	Synchro-scope	1. Adjust the amplitude of color bar to the flat level with [BELL].	$100 \pm 10\%$
SRY	SECAM R-Y BLACK LEVEL	DYNAMIC MODE	SECAM COLOR BAR	Q501 #55 (TP501)	Synchro-scope	1. Adjust the black & white signal level to the H.BLK level with [SRY].	$0 \pm 40mV$
SBY	SECAM B-Y BLACK LEVEL	DYNAMIC MODE	SECAM COLOR BAR	Q501 #55 (TP501)	Synchro-scope	1. Adjust the black & white signal level to the H.BLK level with [SBY].	$0 \pm 40mV$
SCNT	SUB Contrast	CONT : MAX Bright : Cent Color : Cent Tint : Cent	Gray scale signal	IC501 #55 (Monitor output) TP501	Synchro-scope	1. Select the slave address [SCNT], and Y signal will be outputted from the monitor output. 2. Adjust the amplitude of the white level according to the Y signal and the pedestal level.	$2.5V(p-p) \pm 0.2V(p-p)$
BRTC	SUB BRIGHT	CONT : MAX Bright : Cent Color : MIN	BLACK/WHITE signal	Picture adjustment	Visual check	SUB BRIGHT (BRTC) 1. Set user control to reset position. 2. Call up the adjustment mode display, then select the item BRTC. 3. Press the $\ominus$ button on Remote, and select the black and white pattern. 4. Adjust the data of item BRTC and set it just before the dark area lights.	
COLS	COLOR Control Center SECAM	CONT : MAX Bright : Cent Color : Cent Tint : Cent	SECAM color bar signal	IC501 #55 (Monitor output) TP501	Synchro-scope	1. This item must be adjusted after the slave address [SCOL] has been adjusted. 2. Select the slave address [COLS], and B-Y signal will be outputted from the monitor output. 3. Adjust the amplitude of the color bar output.	$1.75V(0-p) \pm 0.2V(p-p)$ 
SCOL	SUB COLOR NTSC	CONT : MAX Bright : Cent Color : Cent Tint : Cent	Gray scale signal (NTSC)	IC501 #55 (Monitor output) TP501	Synchro-scope	1. This item must be adjusted after the slave addresses [TNTC] and [SCNT] have been adjusted. 2. Select the slave address [SCOL], and B-Y signal will be outputted from the monitor output. 3. Adjust the amplitude of the rainbow color bar output.	$1.35V(0-p) \pm 0.2V(p-p)$ 
COLP	SUB COLOR PAL	CONT : MAX Bright : Cent Color : Cent Tint : Cent	Gray scale signal (PAL)	IC501 #55 (Monitor output) TP501	Synchro-scope	1. This item must be adjusted after the slave address [SCOL] has been adjusted. 2. By selecting slave address [COLP], B-Y signal is provided from monitor output. 3. Adjust amplitude of color bar part.	$1.35V(0-p) \pm 0.2V(p-p)$
TNTC	TINT Control Center	CONT : MAX Bright : Cent Color : Cent Tint : Cent	Gray scale signal (NTSC)	C501 #55 (Monitor output) TP501	Synchro-scope	1. Select the slave address [TNTC], and B-Y signal will be outputted from the monitor output. 2. Adjust the amplitude of the rainbow color bar output.	$-5^\circ \pm 5^\circ$
RGBB	PIP BLACK LEVEL		Gray scale signal	Picture adjustment	Visual check	1. Adjust the number of black collapse of PIP sub bright signal.	$5 \pm 1.5$

# CONVERGENCE ADJUSTMENT

## 1. PICTURE ADJUSTMENT

The adjustment are done on two screens; 50 Hz mode (PAL) and 60 Hz mode (NTSC). To synchronize correction wave to each frequency, receive the suitable signal.

### 1-1. Change of Memory (E<sup>2</sup>PROM)

Memory of Q713 E<sup>2</sup>PROM is nonvolatile, and adjusted data is stored. Since data in RAM of Q701 is eliminated with power OFF, the RAM is set by soft command of microcomputer QA01 at every power ON. The adjusted data which is obtained from screen-watching is once stored in RAM inside QA01. The whole data in RAM which is corrected on each adjusting point and is changed, is saved into E<sup>2</sup>PROM (Q713) as a fixed data. The data capacity per one screen requires 8k for 50 Hz mode (PAL), and 4k for 60 Hz mode (NTSC).

### 1-2. Service Mode

#### 1-2-1. Outline

Service mode is controlled by software of microcomputer QA01, and is one of function of set.

This mode is designed so that ordinary user cannot use this, and special operation is required to use this.

Data change is done by direct shift (cursor display) of adjusting points; 50 Hz mode (PAL) 8 x 8/1 color and 60 Hz mode (NTSC) 8 x 8/1 color.

#### 1-2-2. To Enter and to Exit

Press MUTE key on remote hand unit twice and keep pressing the key, press MENU key of set console.

Then service data will be displayed on top left of screen. Under the condition, press "→↔" key on remote hand unit, and the screen shows crosshatch picture (Later, the first picture). Press again "→↔" key, and the screen changes to crosshatch + data display (Later, second picture). This time changed data are automatically saved

Further, press "→↔" key on remote, the screen returns to original picture.

OK + OK MENU

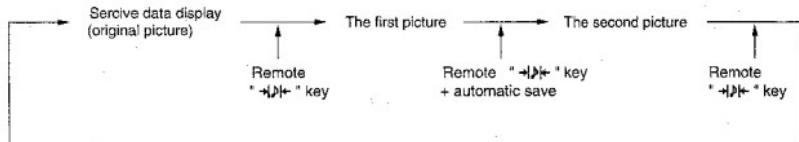
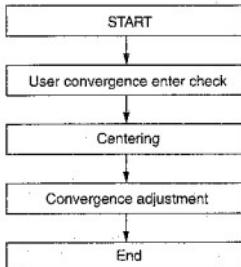
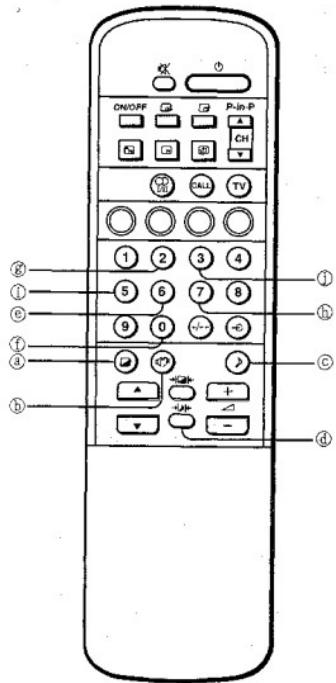


Fig. 10 -1

## Adjusting Procedure In Replacing Convergence Unit/Main Def



## 2. KEY FUNCTION OF REMOTE CONTROL UNIT

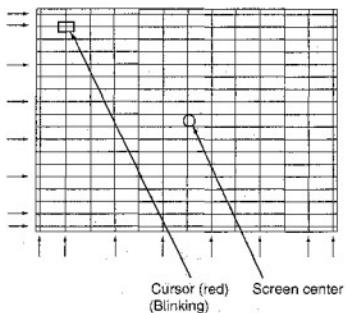


- ④ 2 key ... Red test pattern ON/OFF
- ⑤ 3 key ... Green test pattern ON/OFF
- ⑥ 4 key ..... Blue test pattern ON/OFF
- ⑦ 5 key ..... Mode picture change-over
- ⑧ 6 key ..... Cursor shift / data change mode change-over
- ⑨ 0 key ..... Cursor down / adjusting point down
- ⑩ 1 key ..... Cursor up / adjusting point up
- ⑪ 2 key ..... Cursor right / adjusting point right
- ⑫ 3 key ..... Cursor left / adjusting point left
- ⑬ 4 key ..... Cursor color change

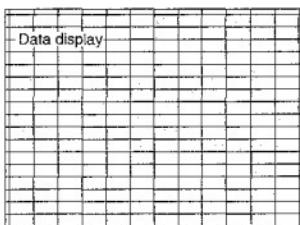
### 3. Picture

a) 50 Hz mode (PAL) . . . Correcting point: Horizontal 8 x Vertical 8 (Arrow marks denote correcting point)

The first picture



The second picture



#### The first picture

Crosshatch pattern. Pattern colors are three color display. Cursor is blinking in red. When changed, condition is last memory state.

Cursor is ..... Data change mode in lighting.

Cursor shifting mode in blinking.

Display color shows the color that data change is possible.

#### The second picture

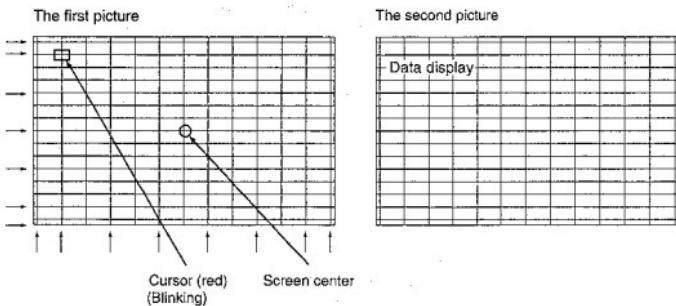
When entering from the first picture to the second picture, correcting wave of convergence is muted for one second. During this period, the changed data is transferred from RAM Q701 to E2PROM Q713, and saved.

The second picture is indicated with data on top left of the first picture, therefore, convergence cannot be adjusted by this picture.

#### Caution:

- Receive suitable signal for adjustment. Centering of green picture can be done in 50 Hz mode (PAL).
- Centering of 60 Hz mode (NTSC) can be adjusted by convergence adjustment. Besides, decide the center by cross pattern of static convergence in menu, and adjust convergence from center to circumference.

b) 60 Hz mode (NTSC) . . . Correcting point: Horizontal 8 x Vertical 7 (Arrow marks denote correcting point)



#### The first picture

Crosshatch pattern. Pattern colors are three color display. Cursor is blinking in red. When changed, condition is last memory state.

Cursor is ..... Data change mode in lighting,  
Cursor shifting mode in blinking.

Display color shows the color that data change is possible.

#### The second picture

When entering from the first picture to the second picture, correcting wave of convergence is muted for one second.

During this period, the changed data is transferred from RAM Q701 to EPROM Q713, and saved.

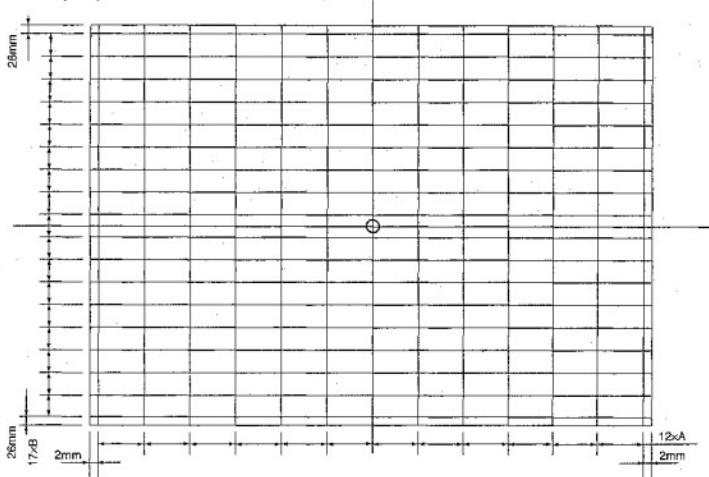
The second picture is indicated with data on top left of the first picture, therefore, convergence cannot be adjusted by this picture.

#### Caution:

- Receive suitable signal for adjustment. Decide the center by cross pattern of static convergence in menu, and adjust convergence from center to circumference.

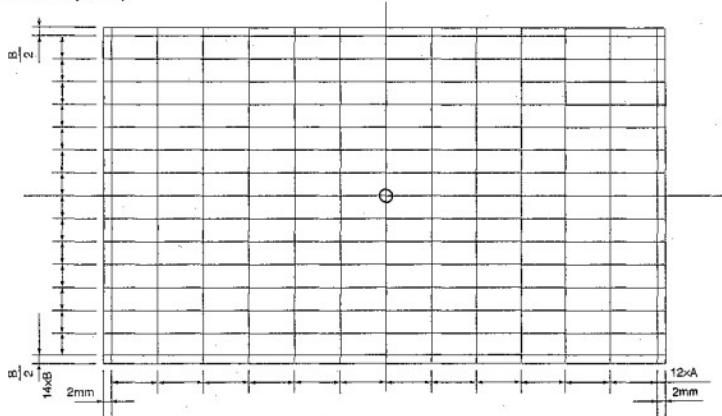
#### 4. ADJUSTING PICTURE DIMENSION (GREEN PICTURE)

##### 1.50 Hz mode (PAL)



48 inches 4:3 Screen size: Horizontal 975mm, Vertical 732mm      O mark: center  
Dimension A: 80.9mm, Dimension B: 40mm

##### 2. 60Hz mode (NTSC)



48 inches 4:3 Screen size: Horizontal 975mm, Vertical 732mm  
Dimension A: 80.9mm, Dimension B: 48.8mm

## SETTING & ADJUSTING DATA

**【SAFETY INSTRUCTIONS】** page 3

HIGH VOLTAGE AT ZERO BEAM:	(A)	31.5 kV
MAX HIGH VOLTAGE:	(B)	32.0 kV
AV VOLTAGE	(C)	110-240 V

Table-1

**【SERVICE MODE】** page 30

ADJUSTING ITEMS AND DATA IN THE SERVICE MODE:

Item	Adjustment	Reference data
RCUT	R CUTOFF (B/W)	40H
GCUT	G CUTOFF (B/W)	40H
BCUT	B CUTOFF (B/W)	40H
RDRV	R DRIVE	40H
BDRV	B DRIVE	40H
CNTX	SUB CONTRAST MAX (4:3 MODE)	7FH
BRTC	SUB BRIGHT CEN	6FH
COLC	SUB COLOR CEN NTSC	35H
TNTC	SUB TINT CEN	4AH
COLP	SUB COLOR CEN PAL	35H
COLS	SUB COLOR CEN SECAM	35H
SCOL	SUB COLOR	10H
SCNT	SUB CONTRAST	09H
VOLS	VOL SCART	00H
FVOL	FM VOL PRE SCALE	00H
NVOL	NICAM VOL PRE SCALE	00H
NICL	NICAM THRESHOLD LEVEL	00H
NICH	NICAM THRESHOLD LEVEL	00H
IDL	IGR THRESHOLD LEVEL	00H
IDH	IGR THRESHOLD LEVEL	00H
EVOL	EXT PRE. VOLUME	01H
EMX	NICAM ON LEVEL	FCH
EMN	NICAM OFF LEVEL	64H
HPOS	50Hz H-POSITION	0BH
VPOS	V-POSITION	04H
HIT	HEIGHT	4BH
VLIN	V-LINEARITY	12H
VSC	V-S CORRECTION	0FH
VPS	V-SHIFT	0EH
VCP	V-COMPENSATION	09H
WID	PICTURE WIDTH	2AH
PARA	E-W PARABOLA	2AH
CNR	E-W CORNER	01H
TRAP	TRAPEZIUM	1AH
HCP	H-COMPENSATION	00H
VFC	V-F CORRECTION	0FH
BELL	SECAM BELL FILTER	70H
SRY	SECAM R-Y	08H
SBY	SECAM-B-Y	08H

Table-2

ADJUSTING ITEMS AND DATAS IN THE DESIGN MODE:

Item	Name of adjustment	Preset Data	Data	Remarks
RCUT				
OPT1	OPTION 1	00H	00H	
OPT0	OPTION 0	02H	00H	
OSD				
:				
RCUT				

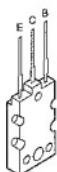
Table-3



# STANDARD CIRCUIT DIAGRAM

## TERMINAL VIEW OF TRANSISTORS

① 2SD2253  
(old)  
2SC5243



② 2SC3852  
2SD1763A  
2SC1569  
2SC4544  
2SA1788  
2SA1306  
2SA1186A



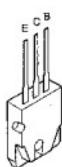
③ 2SC752GTM  
2SC2482  
2SC2655  
2SC4721P



④ 2SC752  
2SA562TM  
2SA1015  
2SC1815  
2SC2878  
2SC1740S  
2SC2120  
2SA9335



⑤ 2SA1788



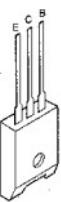
⑥ RN2203  
RN2201  
RN2004  
RN1203  
RN1204  
RN2204  
RN1205  
RN1202  
RN1201



⑦ 2SD1554  
2SD2253  
2SD1556  
2SC5143

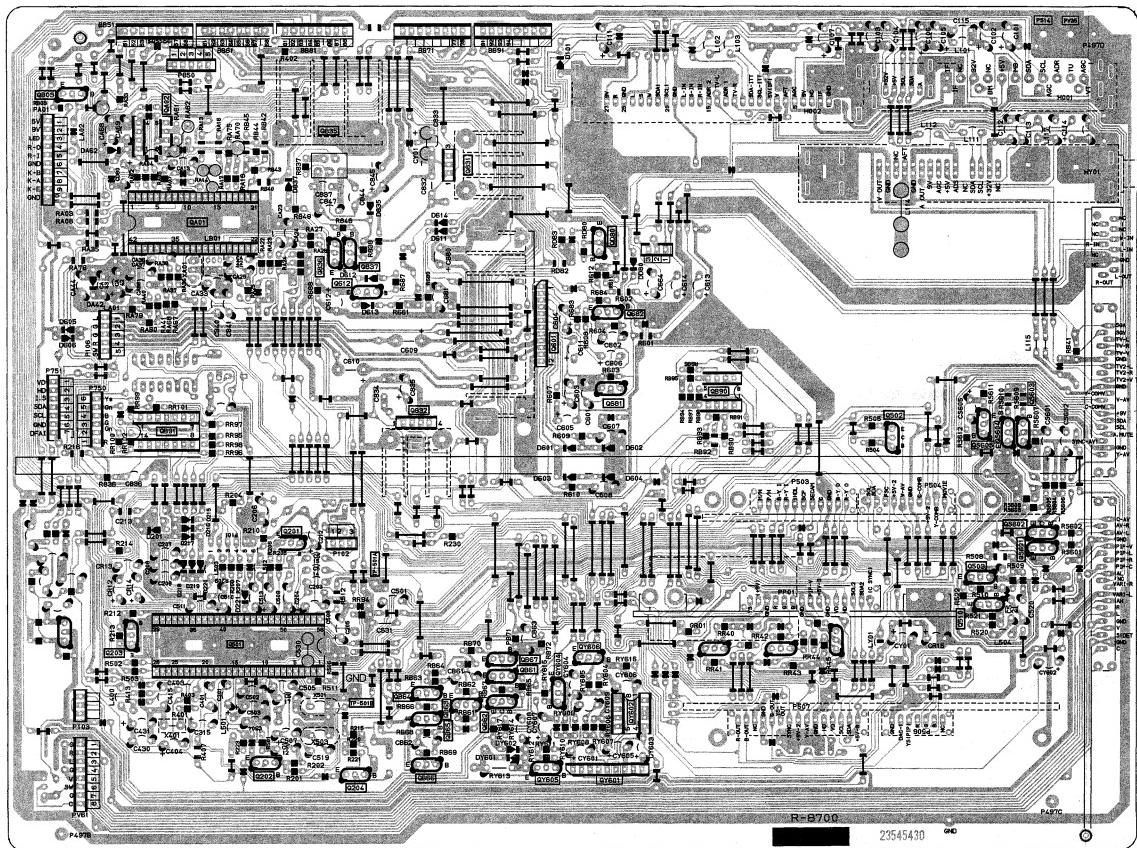


⑧ ON4409

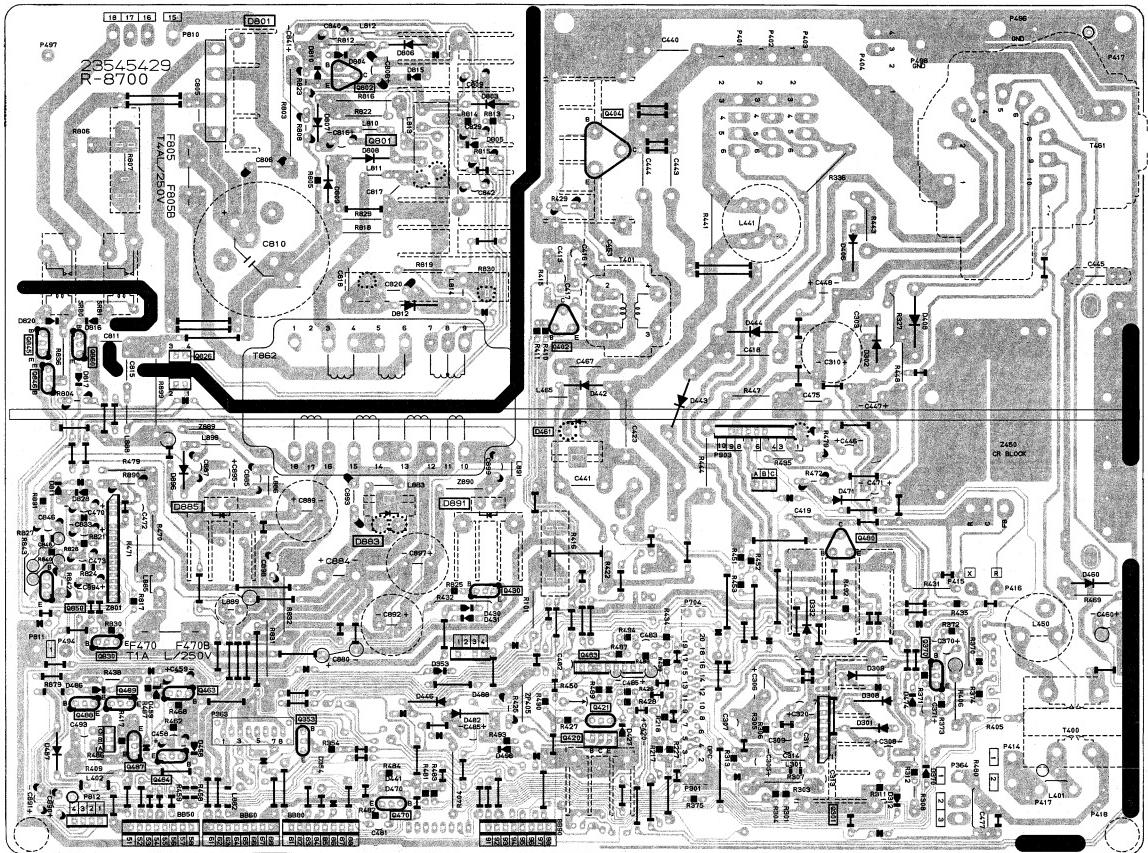


AV-48PRO  
AV-48PROX

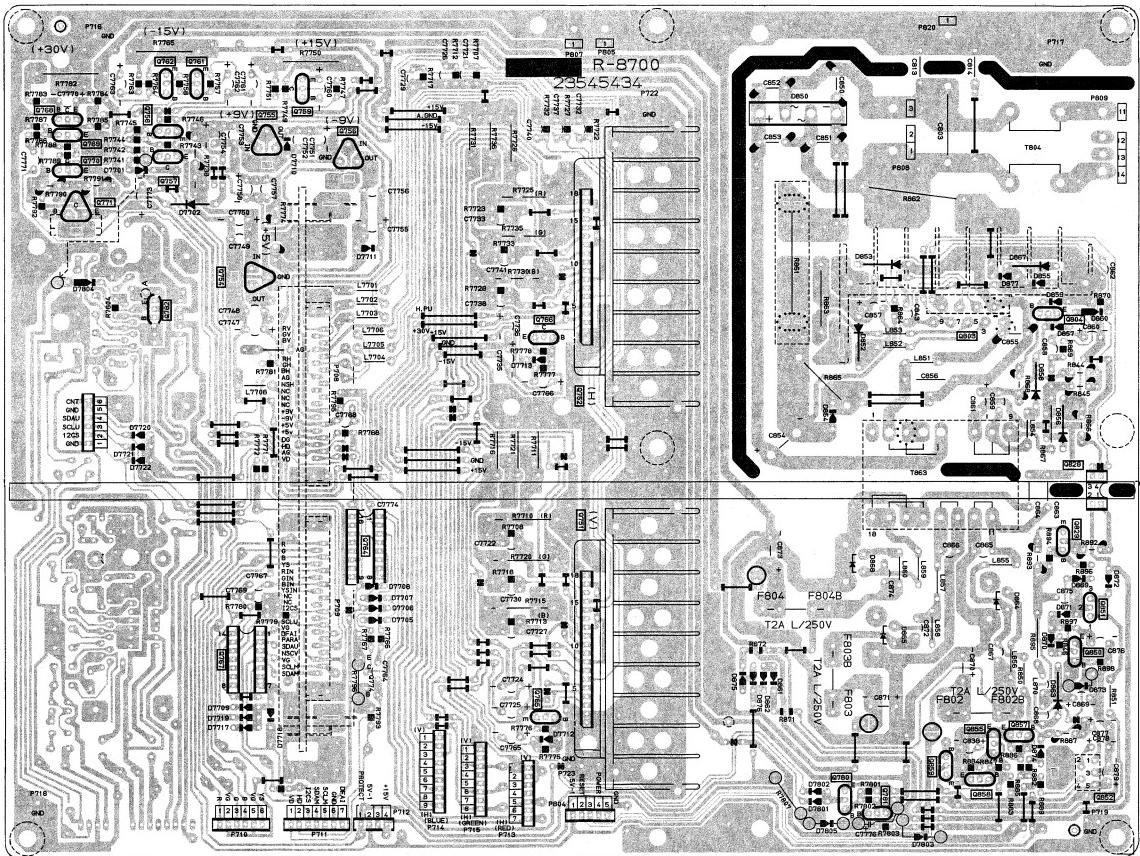
SIGNAL BOARD PB7667 (AV-48PRO)  
PB7674 (AV-48PROX)  
BOTTOM (FOIL) SIDE



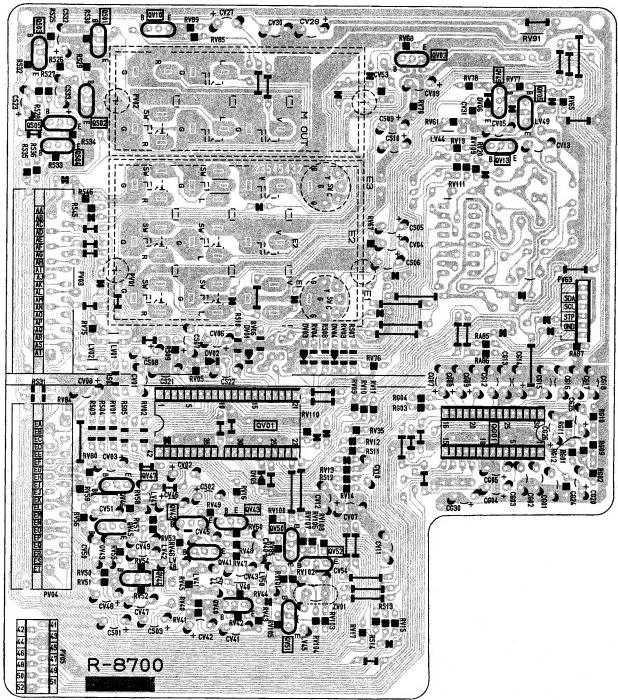
**DEF/POWER BOARD PB7666**  
**BOTTOM (FOIL) SIDE**



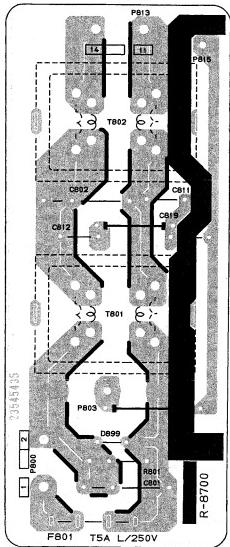
**CONV/POWER2 BOARD PB7671**  
**BOTTOM (FOIL) SIDE**



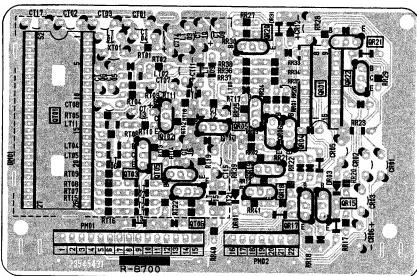
**A/V BOARD PB7669**



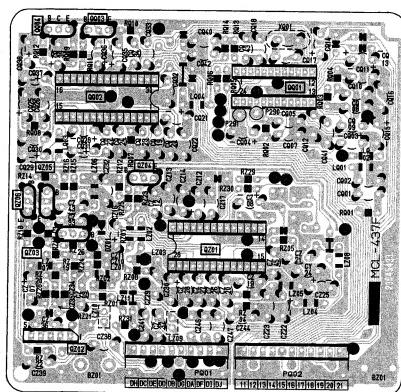
**AC-IN1 BOARD PB7672**  
**BOTTOM (FOIL) SIDE**



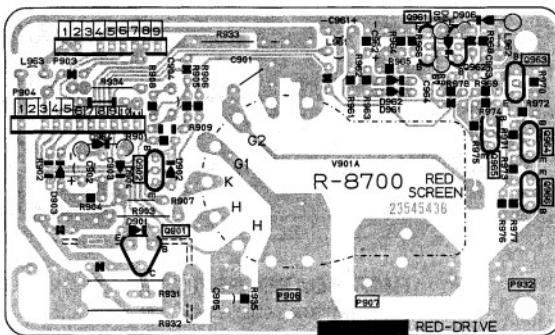
**TEXT BOARD PB7668 (AV-48PRO)**  
**BOTTOM (FOIL) SIDE**



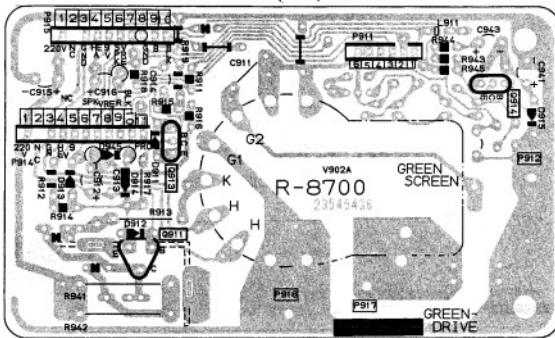
**COMB/SECAM BOARD PB7670**



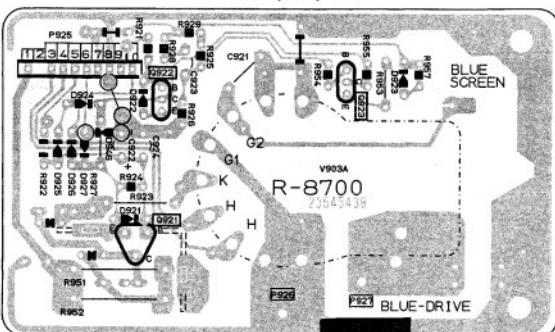
**R-DRIVE BOARD PB7673-1**  
BOTTOM (FOIL) SIDE



**G-DRIVE BOARD PB7673-2**  
BOTTOM (FOIL) SIDE

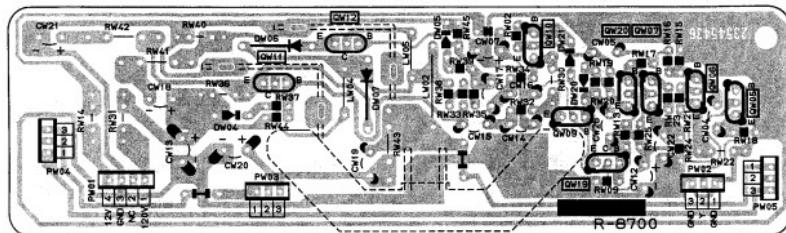


**B-DRIVE BOARD PB7673-3**  
BOTTOM (FOIL) SIDE



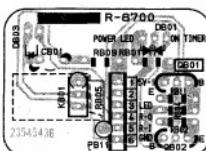
SVM BOARD PB7673-4

**BOTTOM (FOIL) SIDE**



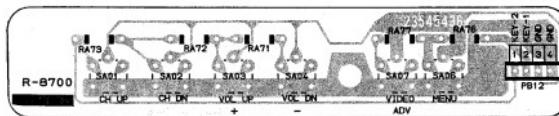
RMT BOARD PB7673-5

**BOTTOM (FOIL) SIDE**



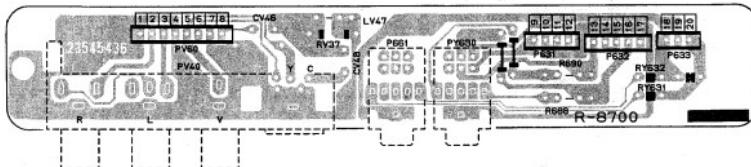
CONT BOARD PB7673-6

**BOTTOM (FOIL) SIDE**

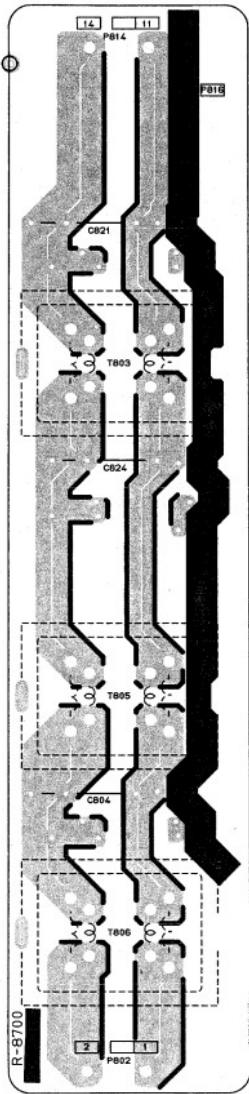


**FRONT IN BOARD PB7673-7**

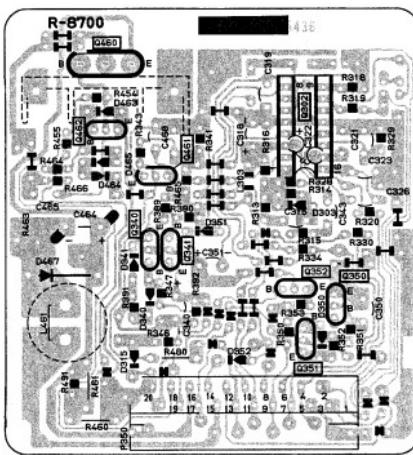
**BOTTOM (FOIL) SIDE**



**AC-IN BOARD PB7673-8**  
**BOTTOM (FOIL) SIDE**

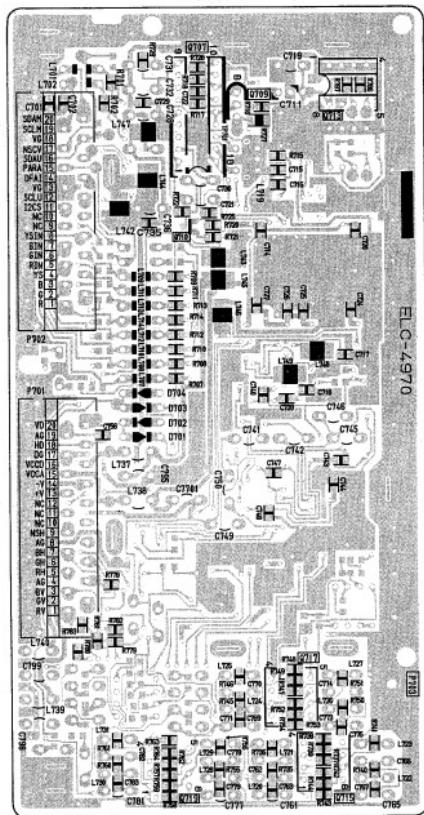


**DPC BOARD PB7673-9**



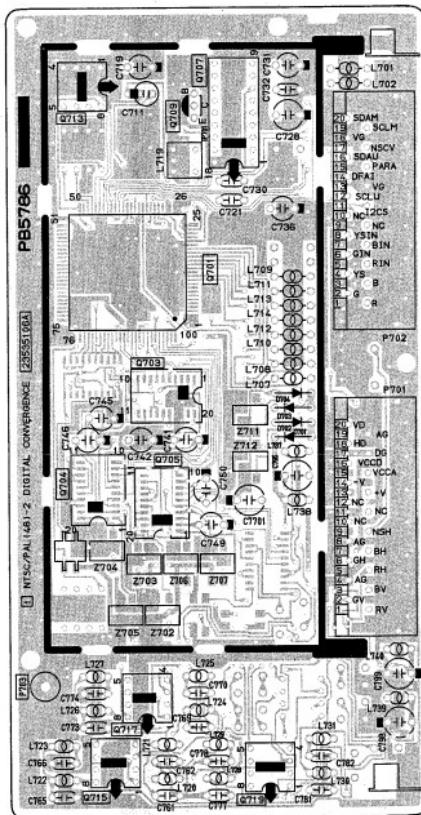
## DIGITAL-CONV. BOARD

**BOTTOM (FOIL) SIDE**

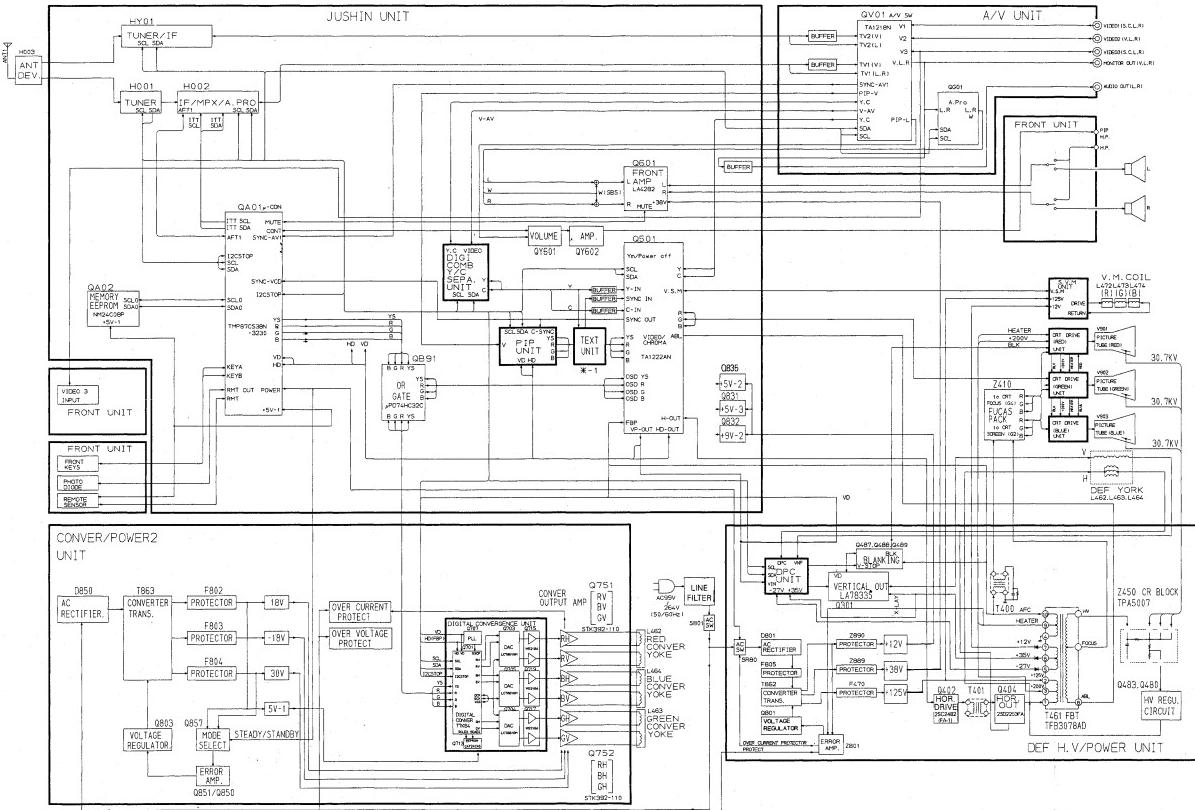


## DIGITAL-CONV. BOARD

**TOP (PARTS) SIDE**



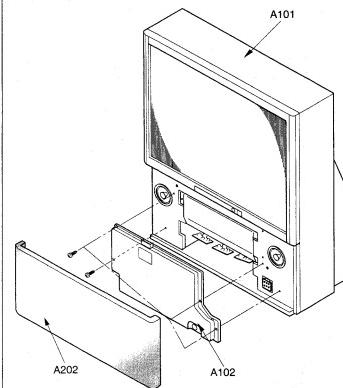
## **CHASSIS BLOCK DIAGRAM**



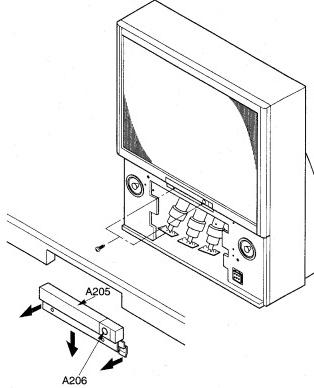
\*-1 AV-48PRO  
NO AV-48PROX

## MECHANICAL DISASSEMBLY

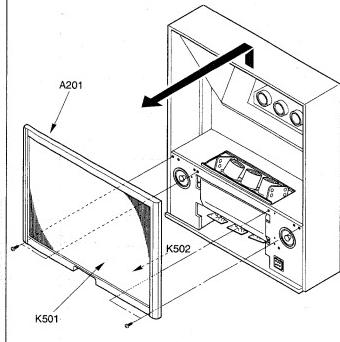
1 Speaker Grille Removal



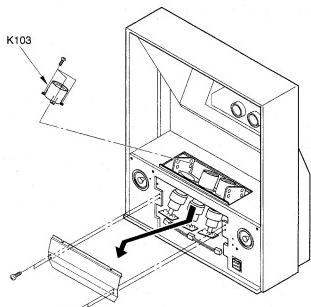
2 Control Panel Removal



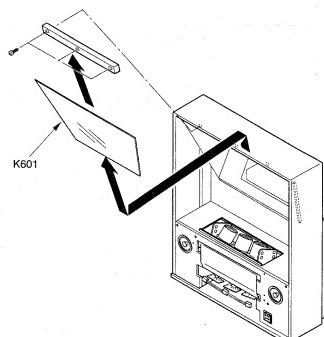
3 Front Mask Removal



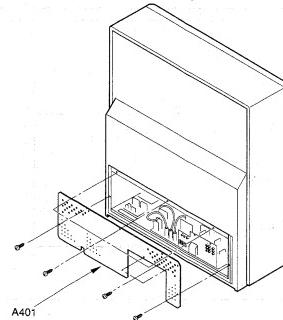
4 Shield Plate, Lens Removal



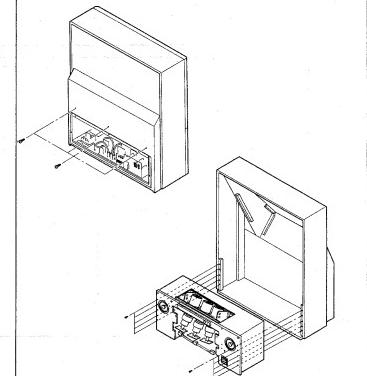
5 Mirror Removal



6 Back Board Removal



7 Light Box Removal



# SCHEMATIC DIAGRAM

MODEL : AV-48PRO (1/4)  
AV-48PROX

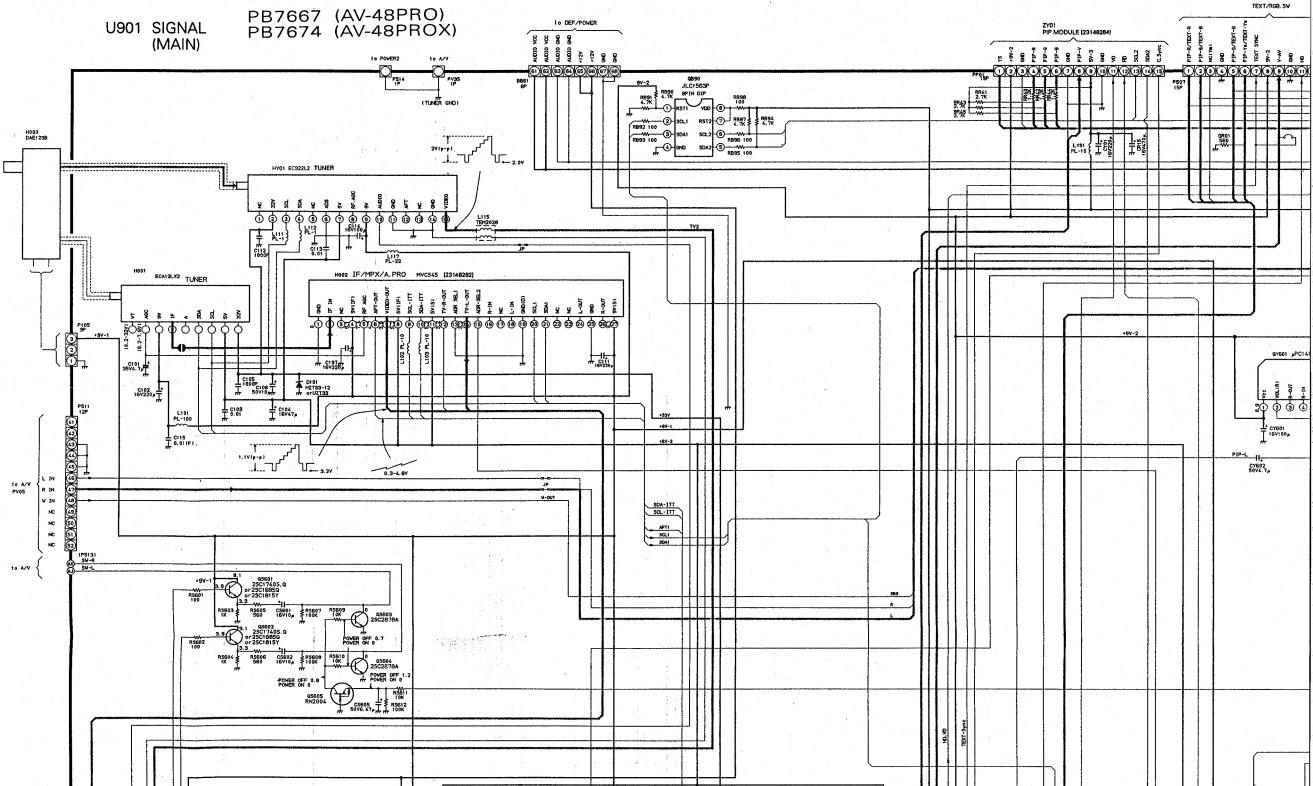
**CAUTION:** The international hazard symbols "Δ" in the schematic diagram and the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. The mounting position of replacements is to be identical with originals. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE on page 3. Do not degrade the safety of the receiver through improper servicing.

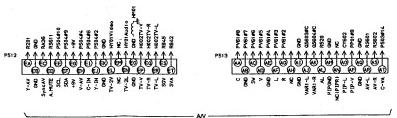
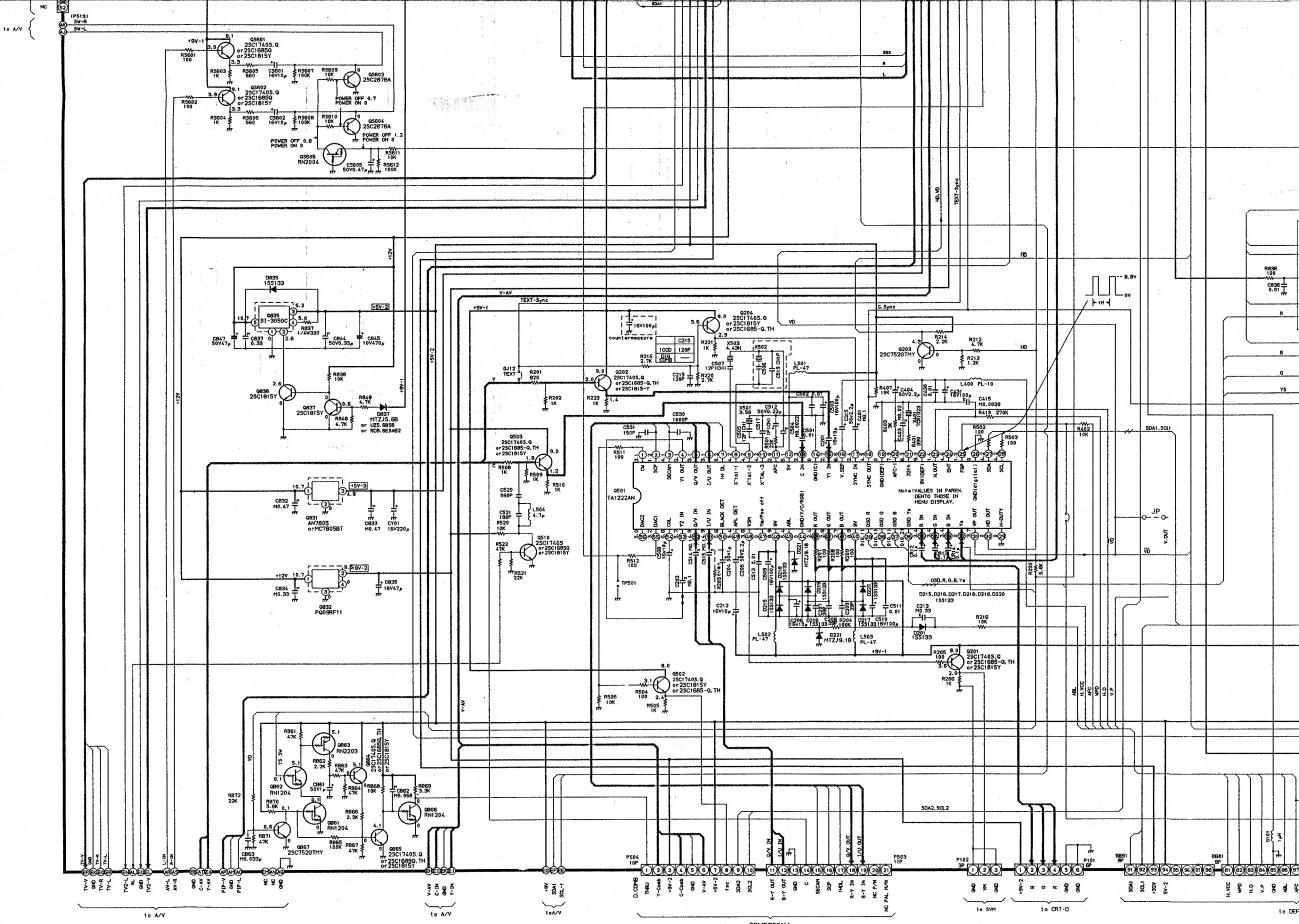
## OBSERVATION OF VOLTAGES AND WAVEFORMS

1. Voltages read with DIGITAL VOLTMETER from point shown to chassis ground, line voltage 220 volts, colour bar signal. Voltages reading may vary ±20%.
2. All waveforms are taken using a wide band oscilloscope and a low capacity probe.
3. Waveforms are taken using a standard colour bar signal.
4. Make sure that CONTRAST and COLOUR controls are in mid position and BRIGHTNESS control is almost in maximum position. Set other controls for best picture.

## NOTES:

1. D.C. resistance value of a principal transistor. These are measured for separated
2. The circuits are subject to change without
3. ● : Solder links.





## **EXPRESSION**

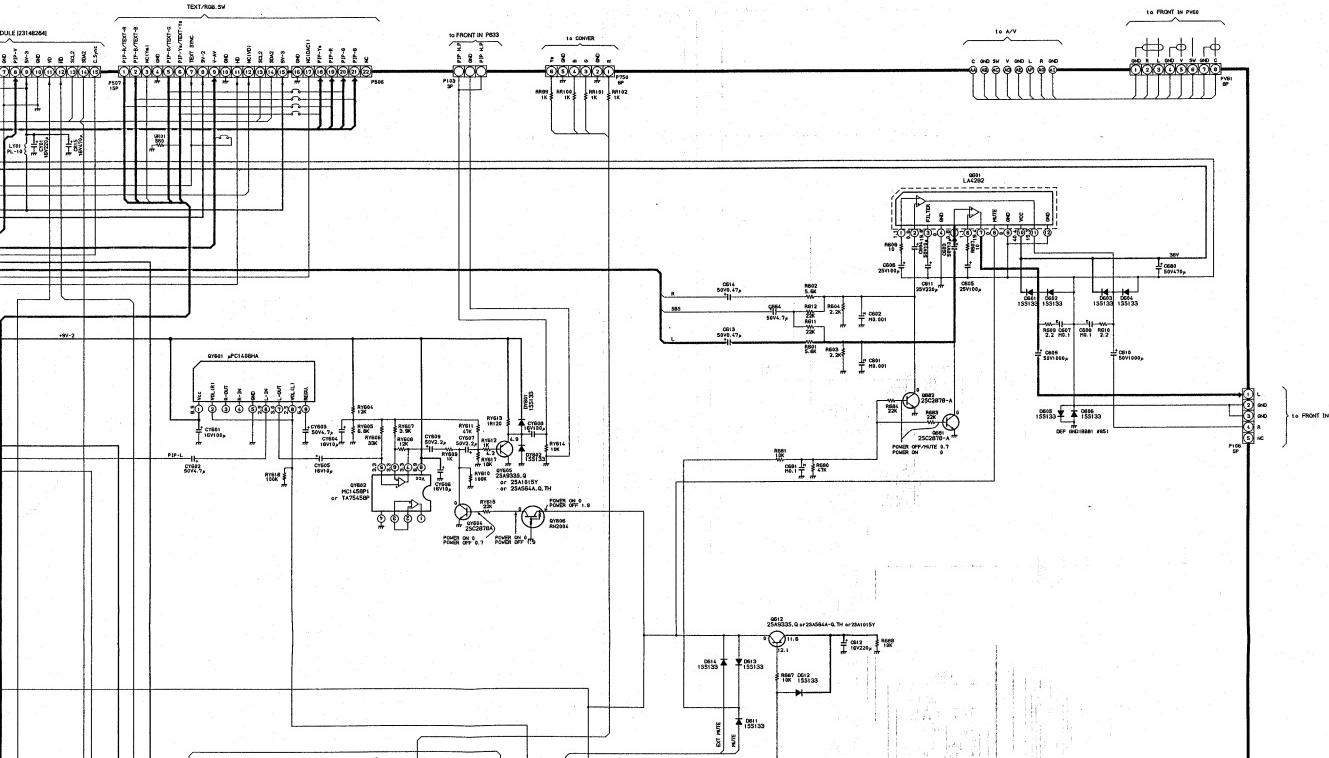
114

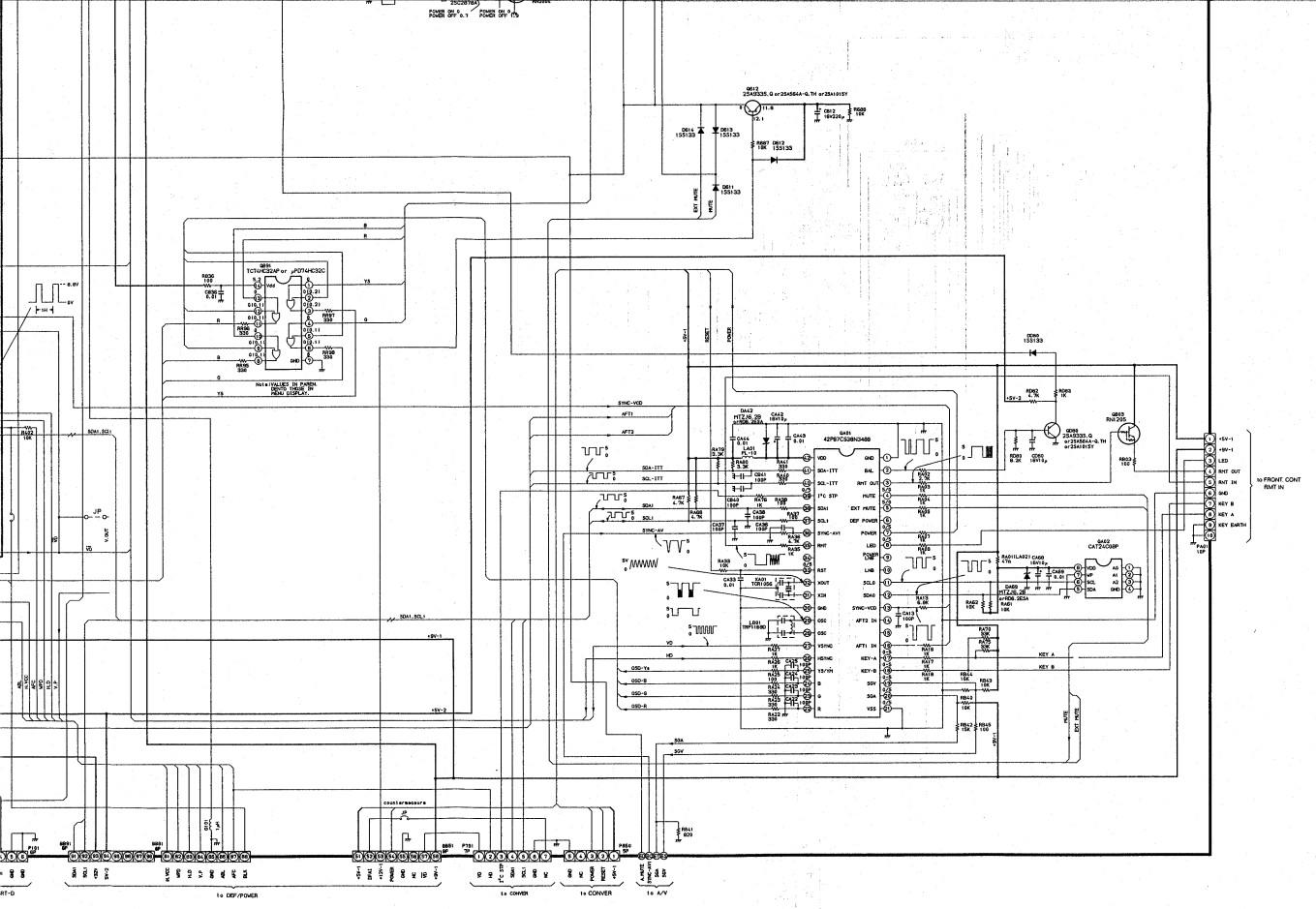
## VALUE OF RESISTOR, CAPACITOR and INDUCTOR

1. Resistance is shown in ohm, k=1,000, M=1,000,000
  2. Unless otherwise noted in schematic, all capacitor values less than 1 are expressed in  $\mu\text{F}$  and the values more than 1 in  $\text{pF}$ .
  3. Unless otherwise noted in schematic, all inductor values more than 1 are expressed in  $\mu\text{H}$ , and the values less than 1 in H.

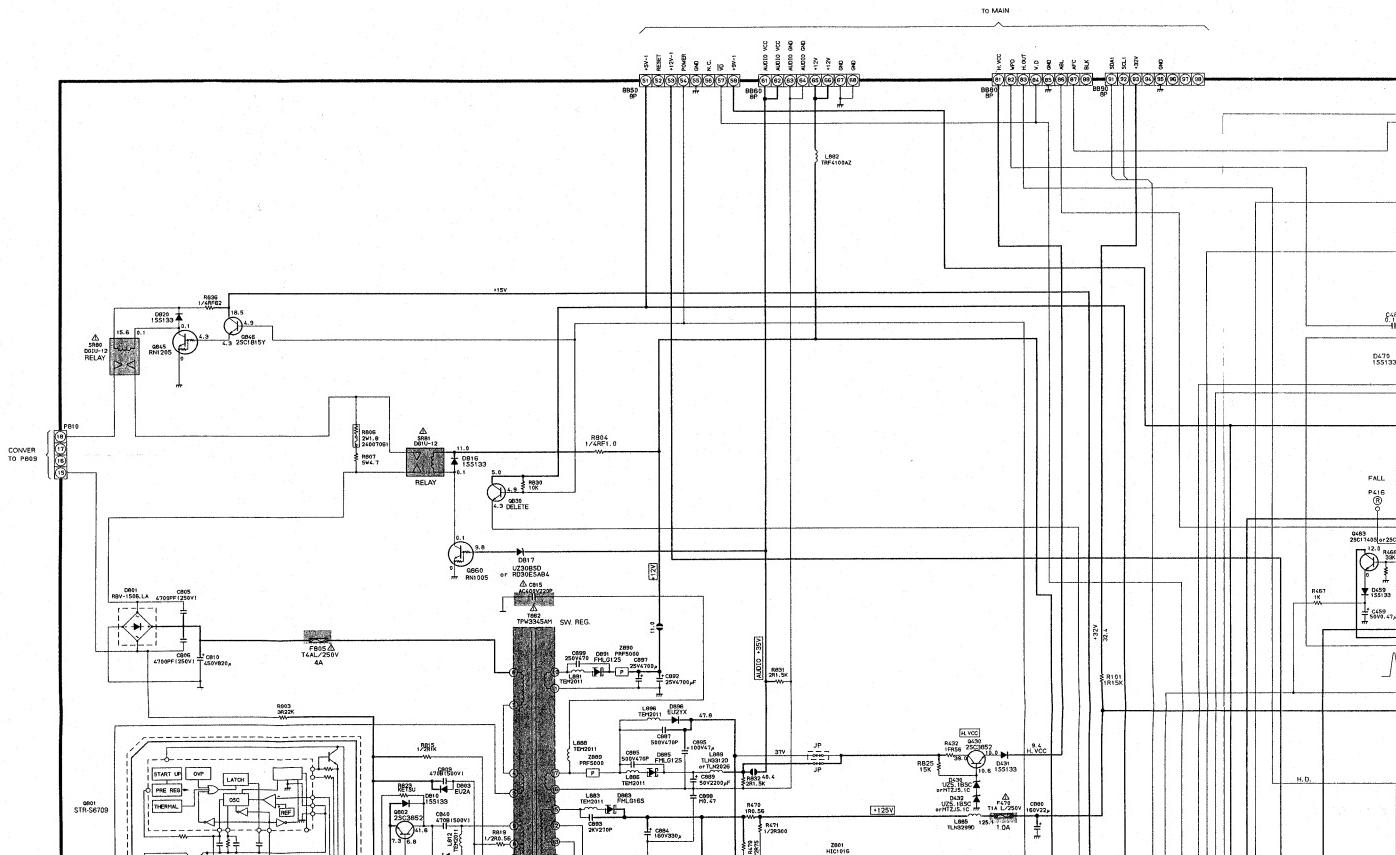
**NOTES:**

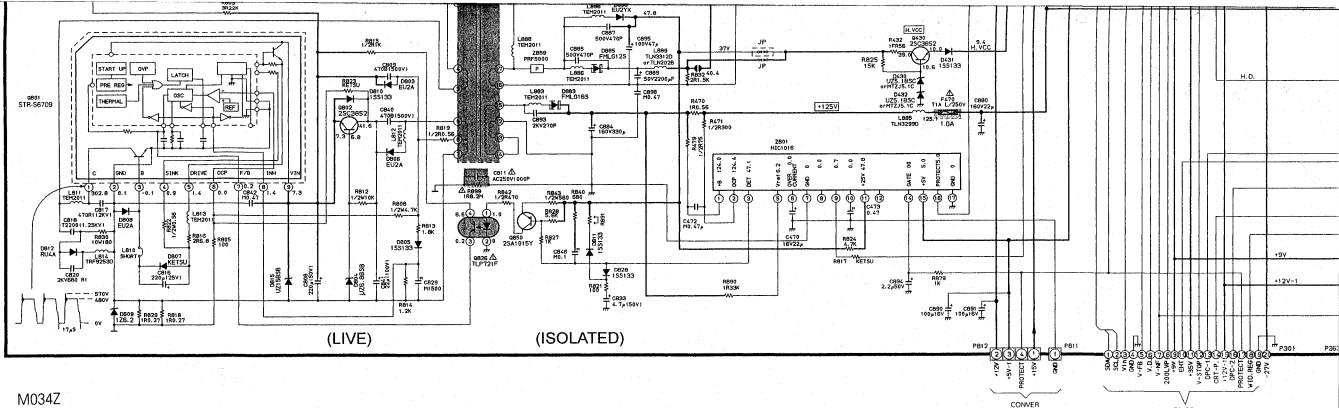
1. D.C. resistance value of a principal transformer is shown in this schematic diagram. These are measured for separated from the circuit.
  2. The circuits are subject to change without notice.
  3. : Solder links.



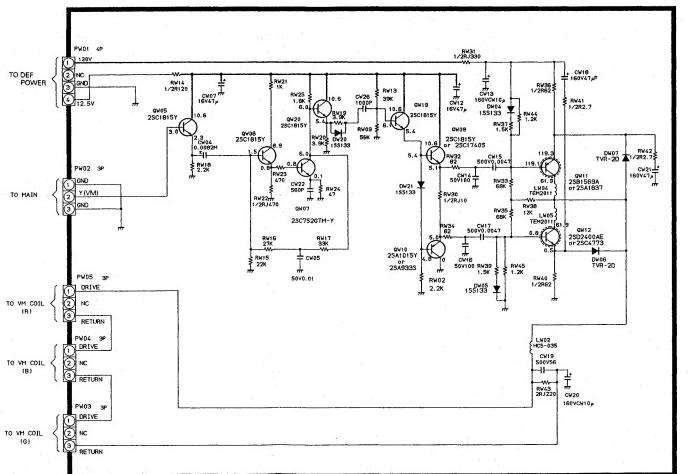


**SCHEMATIC DIAGRAM**      **MODEL :** AV-48PRO      AV-48PROX (2/4)

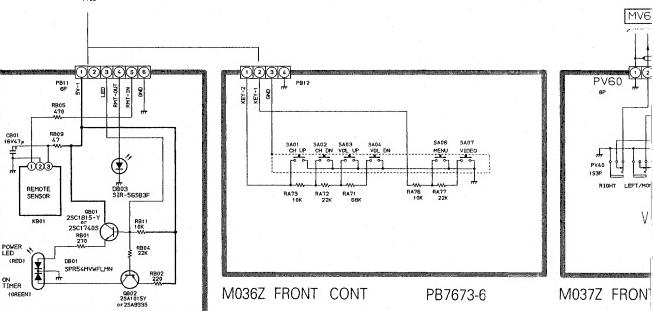




M034Z  
SVM PB7673-4

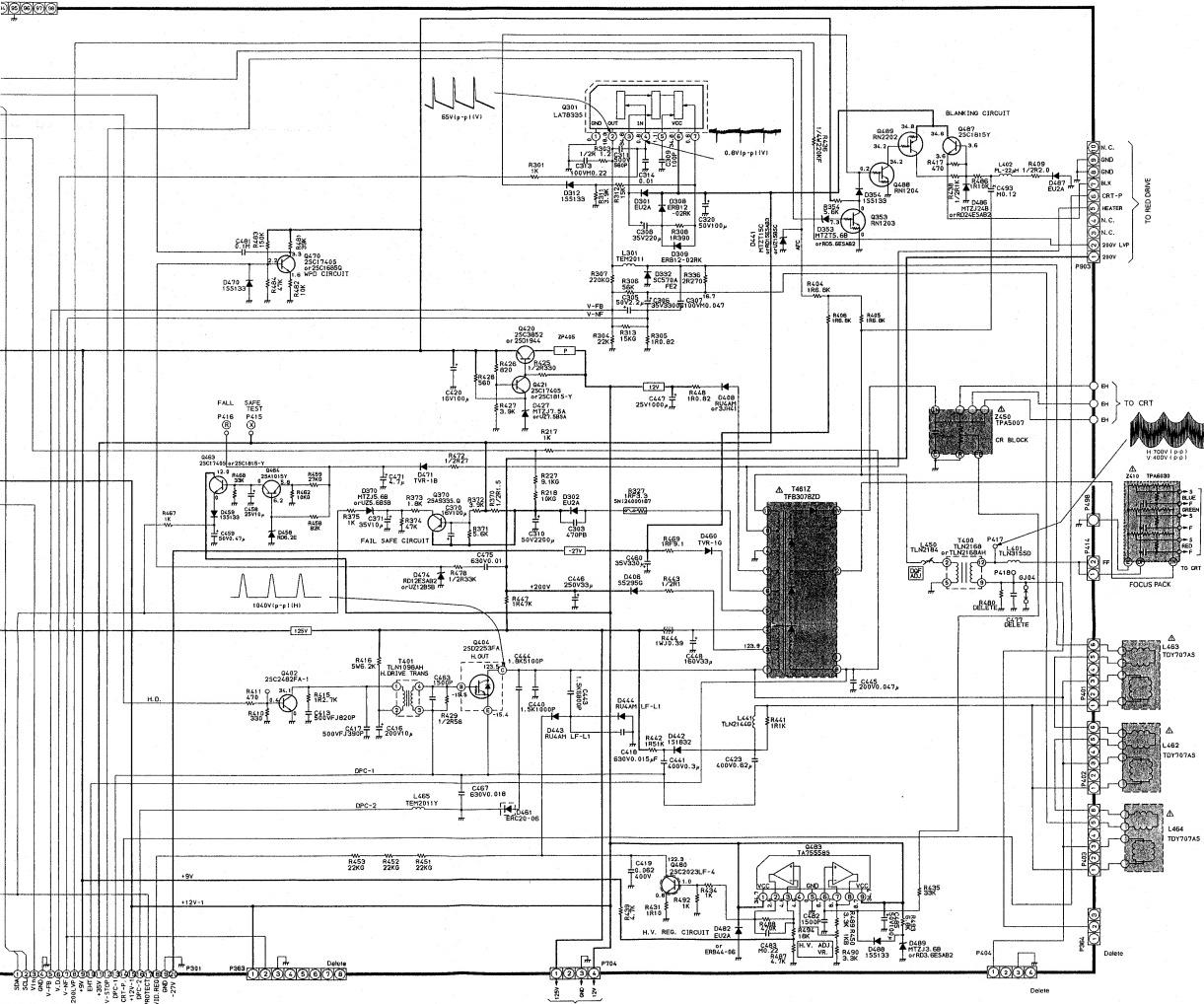


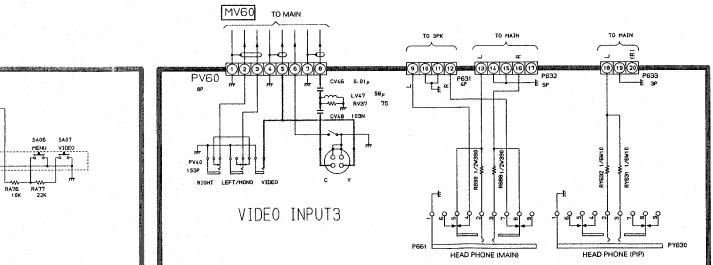
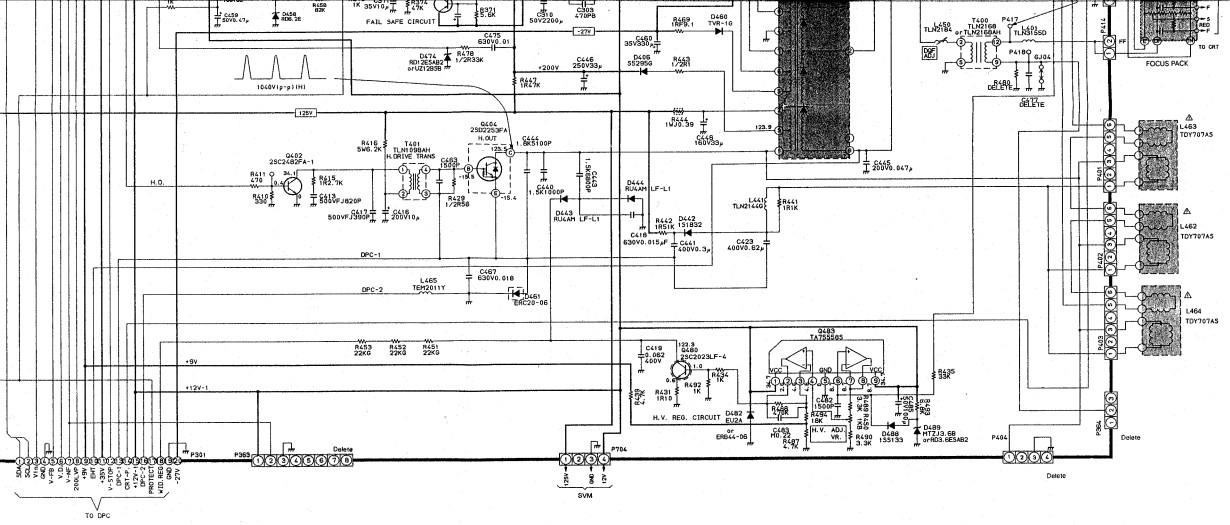
M035Z RMT IN PB7673-5



U401 DEF/POWER

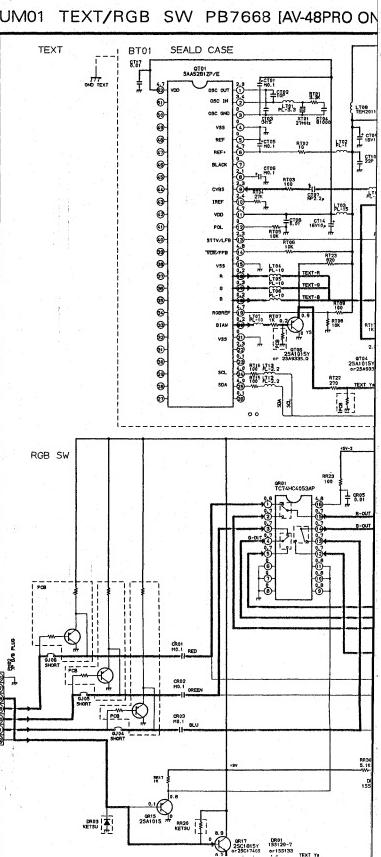
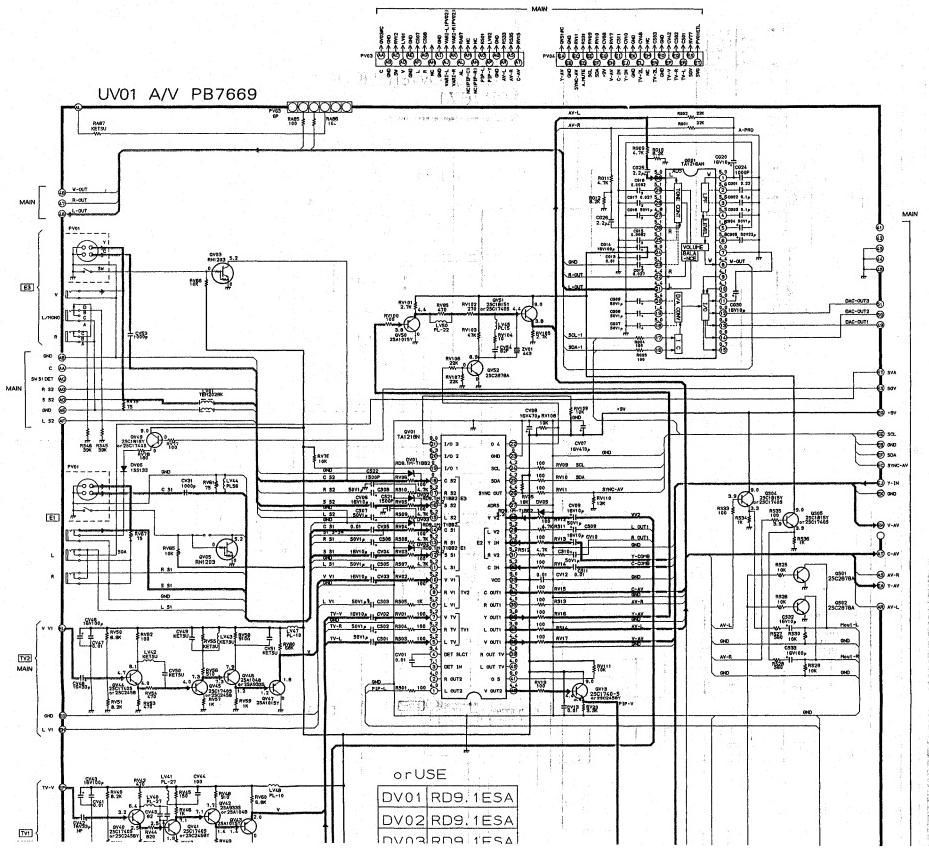
PB7666

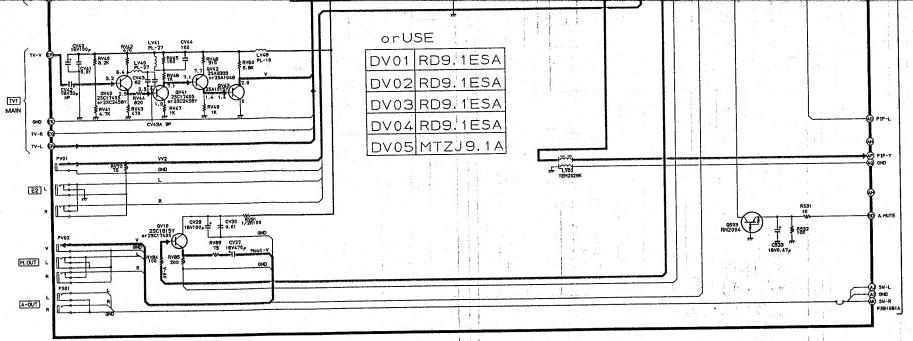




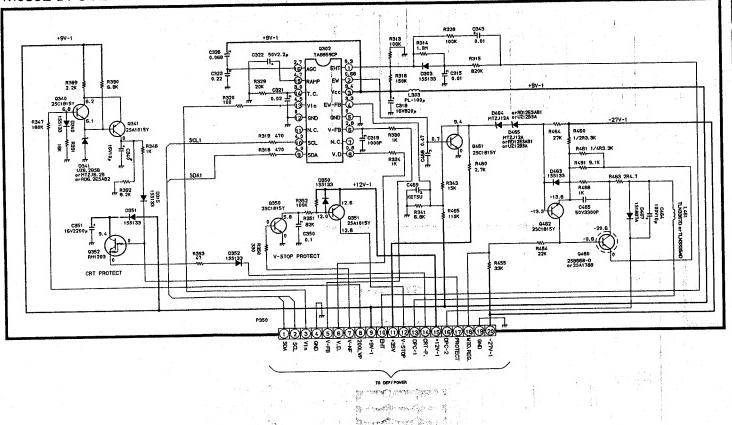
## **SCHEMATIC DIAGRAM**

**MODEL : AV-48PRO (3/4)**





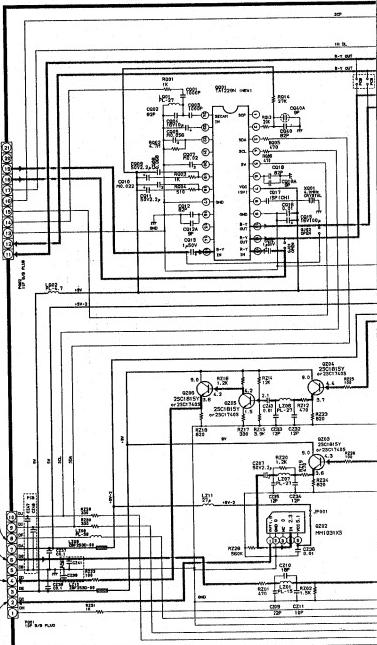
M039Z DPC PB7673-9



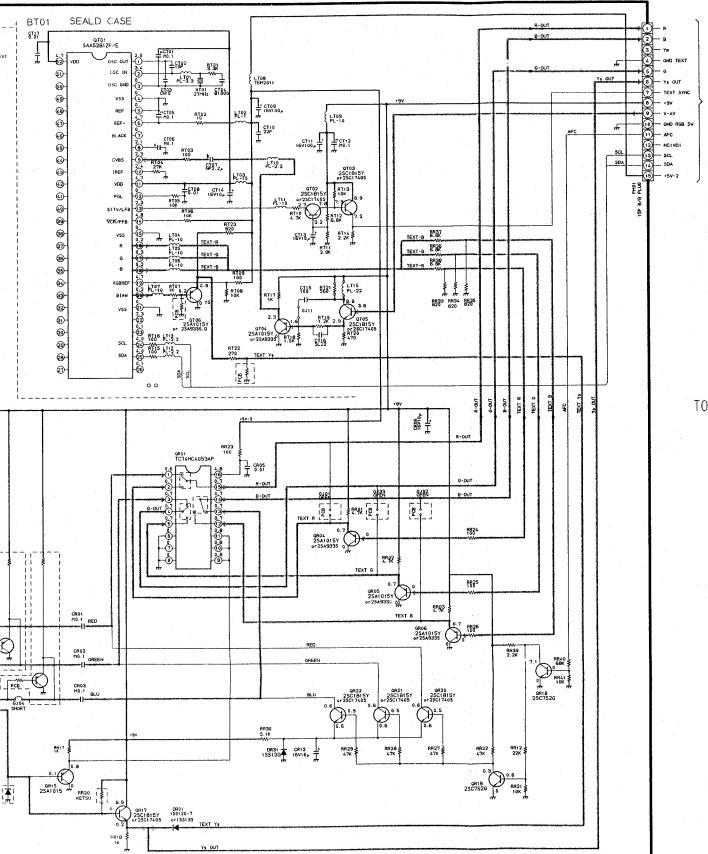
or USE

- |      |          |
|------|----------|
| DV01 | RD9.1ESA |
| DV02 | RD9.1ESA |
| DV03 | RD9.1ESA |
| DV04 | RD9.1ESA |
| DV05 | MTZJ9.1A |

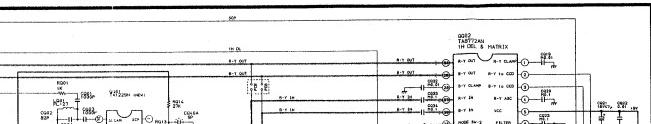
JZ01 COMB/SECAM PB7670



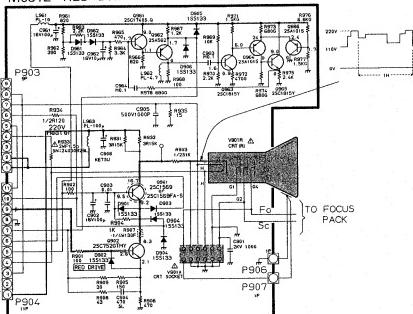
/RGB SW PB7668 [AV-48PRO ONLY]



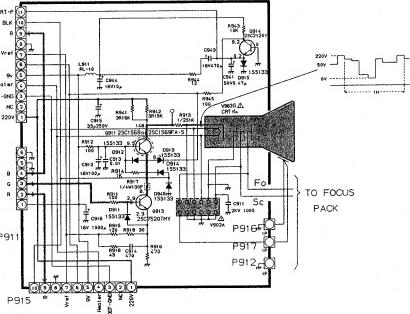
MB/SECAM PB7670



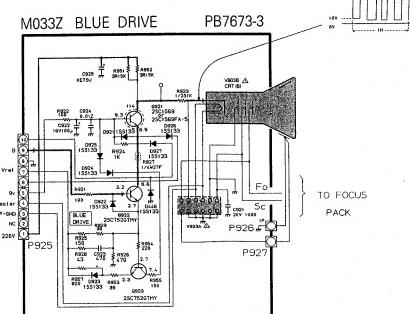
M031Z RED DRIVE PB7673-1

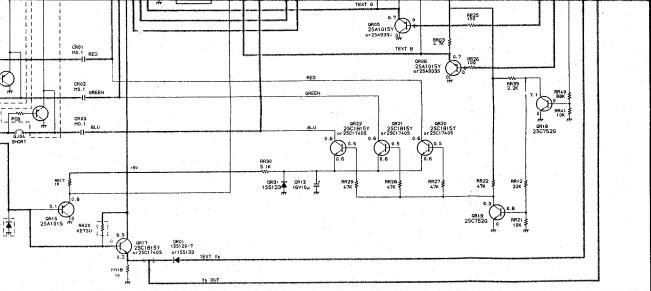


P914 M032Z GREEN DRIVE PB7673-2

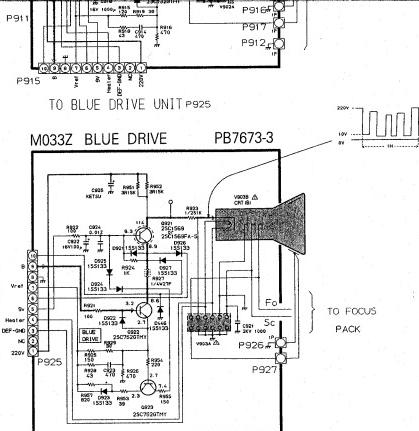
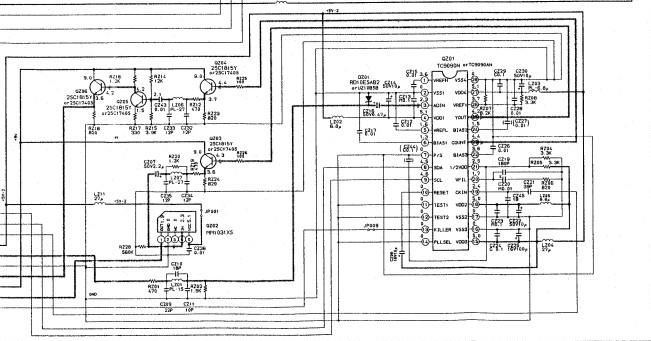
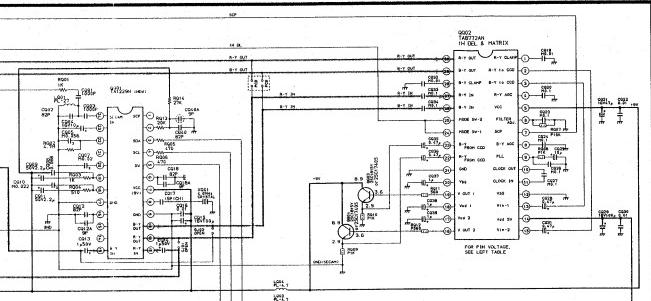


TO BLUE DRIVE UNIT P925



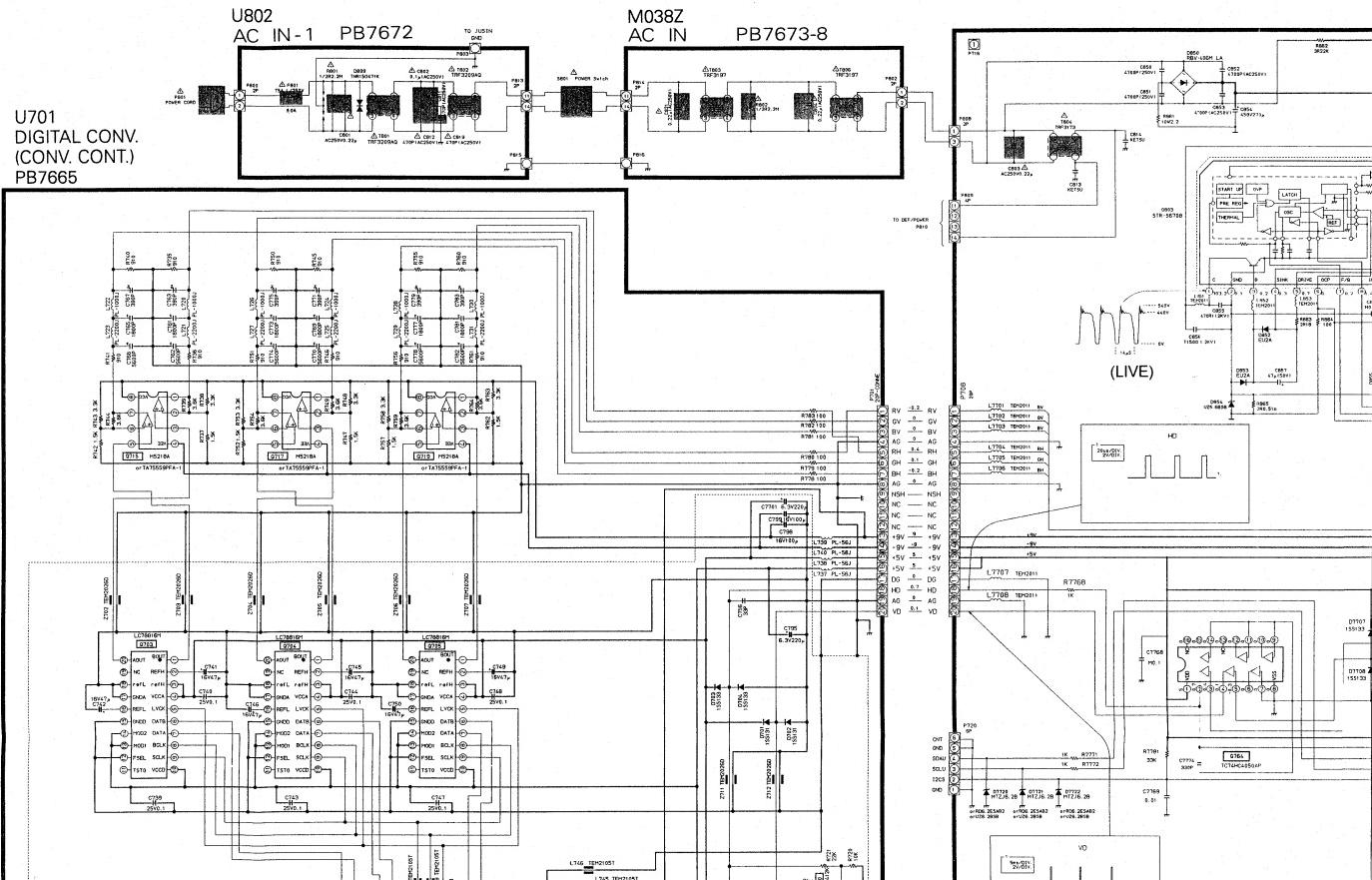


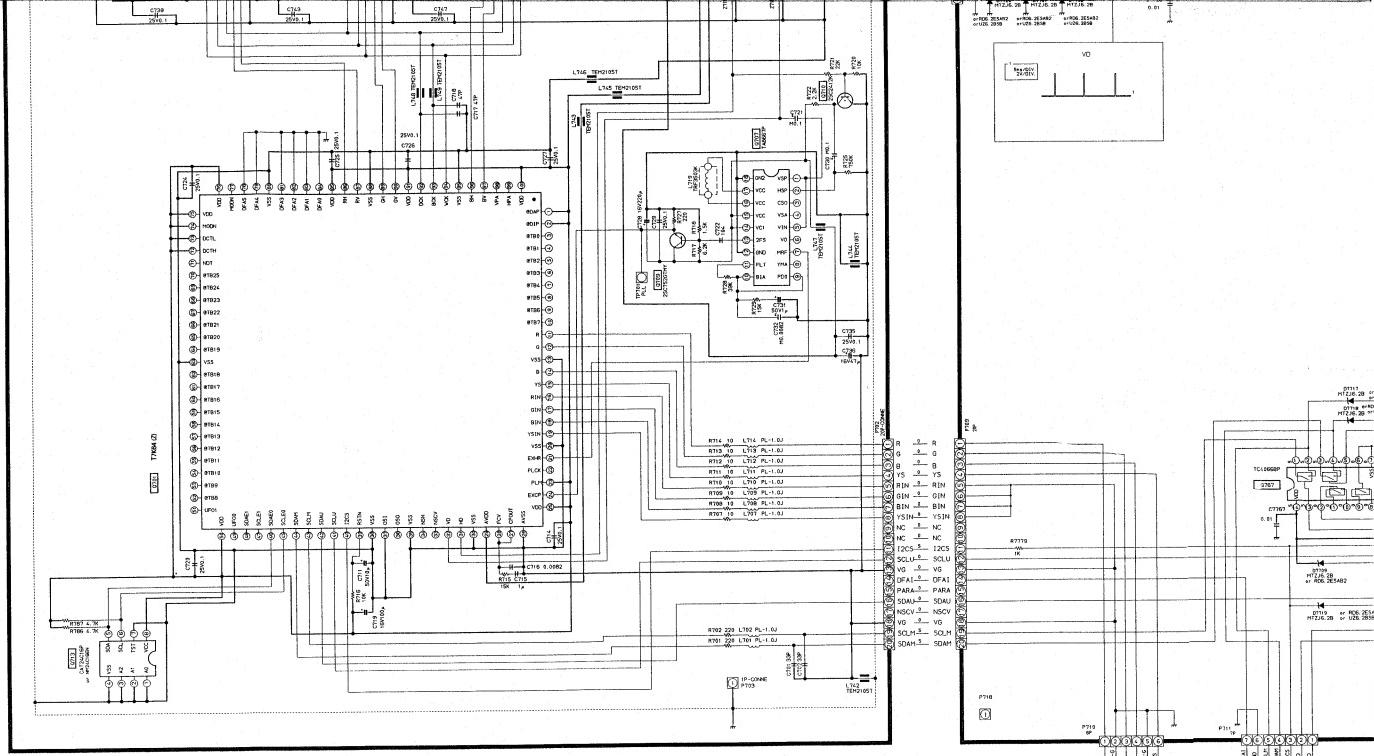
MB/SECAM PB7670



## **SCHEMATIC DIAGRAM**

MODEL : AV-48PRO (4/4)  
AV-48PROX





10

**CAUTION**  
The grounding (hr mark) in the schematic diagram is separated from the other circuit ground (gry mark) to prevent possible shock hazard.

- 30 -

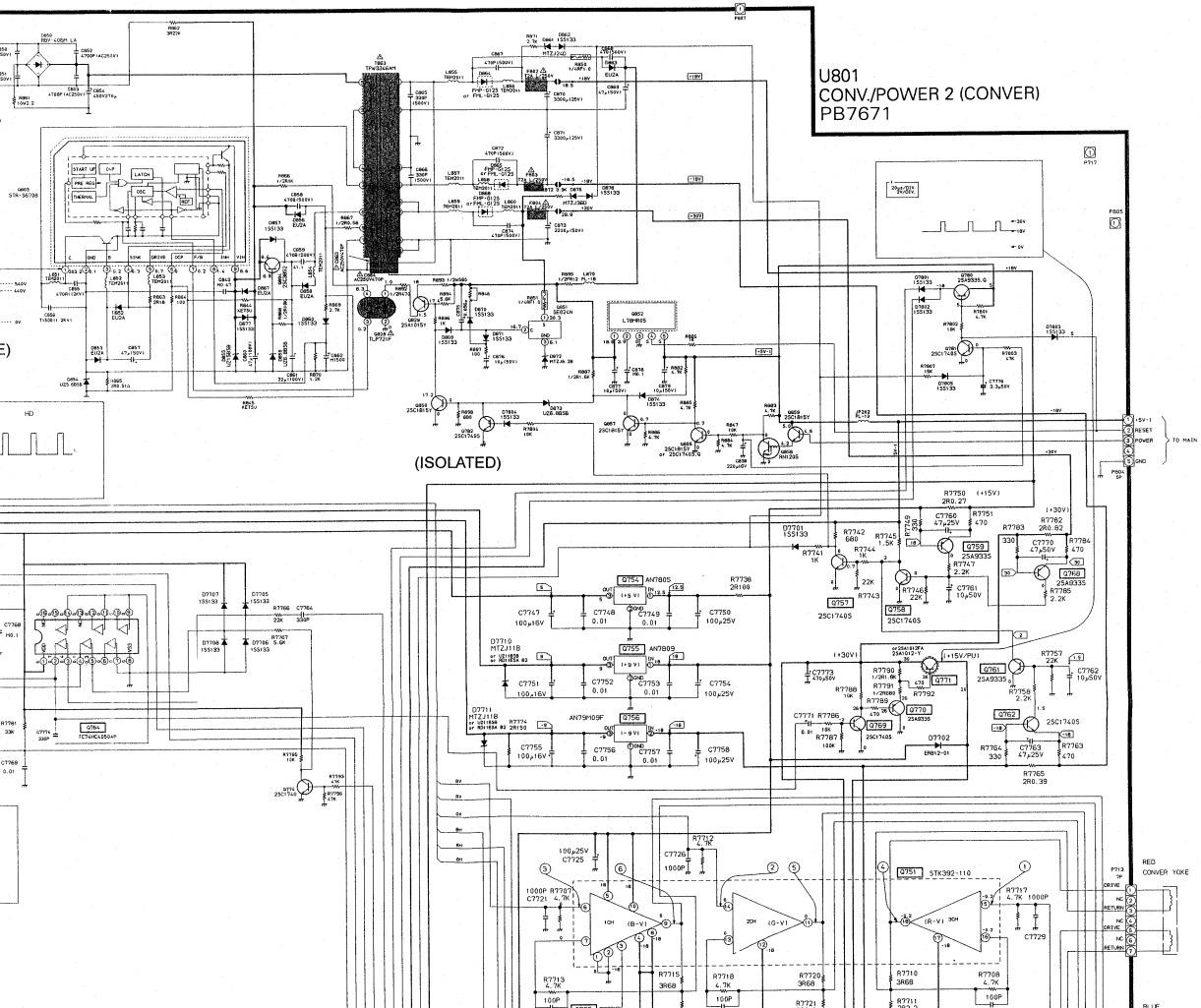
**R. RESISTOR** Resistance is shown in ohms [ $\Omega$ ] or kilohms [ $k\Omega$ ], or megohms [ $M\Omega$ ]. All resistors are 1/8W and 5% tolerance carbon resistors unless otherwise noted as the following marks:  
 1/2W : Metal or Metal oxide of 1/2 watt  
 1WP : Fuse resistor of 1 watt  
 10W : Cement of 10 watts  
 $K = 1k\Omega \quad G = 12k\Omega \quad F = 51k\Omega$

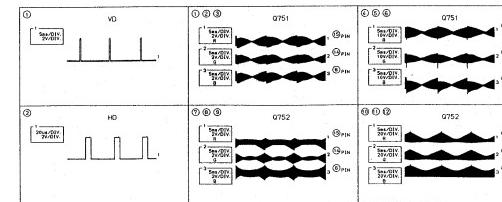
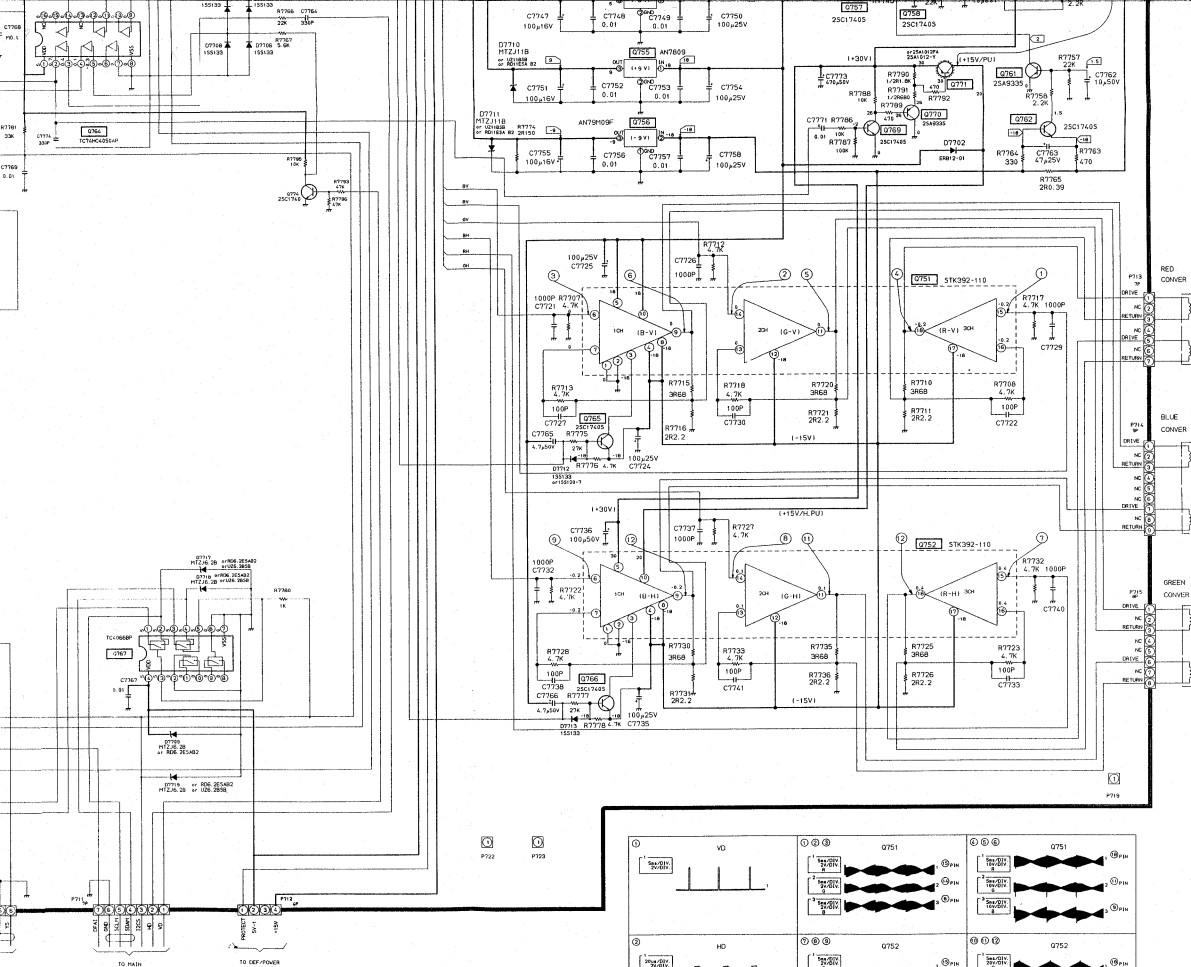
**3. CAPACITOR** Unless otherwise noted, all monolithic capacitors values less than 1 pF, dielectric values more than 1 nF,  $\mu$ F.  
All capacitors are ceramic 50V, unless otherwise noted at the following parts.

3. The parts indicated with "▲" have special characteristics should be replaced with identical parts only.

#### 4. This is

[modification notice](#)





**PARTS LIST**

**WARNING:** BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 3 OF THIS MANUAL.

**CAUTION:** The international hazard symbols "⚠" in the schematic diagram and the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. The mounting position of replacements is to be identical with originals. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE . Do not degrade the safety of the receiver through improper servicing.

**NOTICE:**

- The part number must be used when ordering parts, in order to assist in processing, be sure to include the Model number and Description.

**ABBREVIATIONS:**

Capacitors .....	CD	: Ceramic Disk	PF	: Plastic Film	EL	: Electrolytic
Resistors .....	CF	: Carbon Film	CC	: Carbon Composition	MF	: Metal Film
OMF	:	Oxide Metal Film	VR	: Variable Resistor	FR	: Fusible Resistor

(All CD and PF capacitors are ±5%, 50V and all resistors, ±5%, 1/6W unless otherwise noted.)

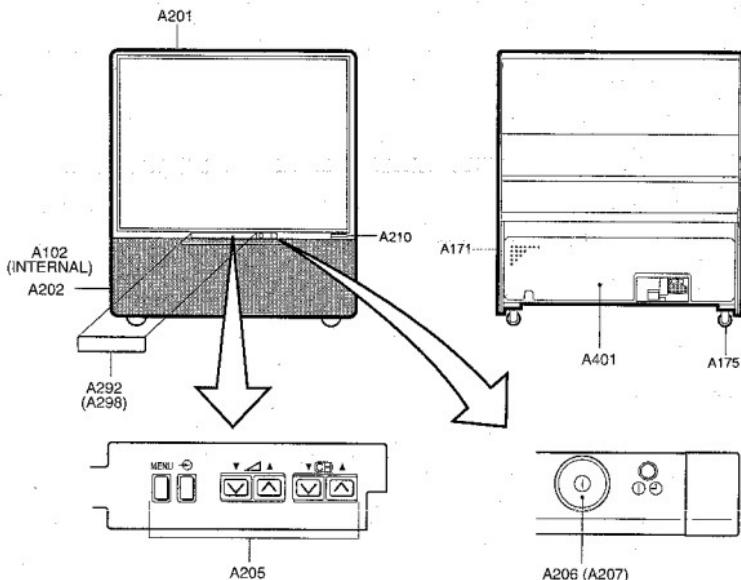
**DIFFERENCE OF PARTS LIST**

⚠	Location No.	Parts Name	Parts No.		Description
			AV-48PRO	AV-48PROX	
⚠	U901	SIGNAL Board	23781242	23781248	PB7667
	UM01	TEXT/RGB SW Board	23781243	-----	PB7674
	B251	Model No.Label	23560714	23560767	
	P601	Power Cord	23372053	23372055	
	K902	Remote Hand Unit	23306249	23306252	RM-C265-1 (AV-48PRO) RM-C265-1 (AV-48PROX)

**USING P . W . BOARD**

Location No.	Parts No.	Description
M031Z	23781249	RED DRIVE (CRT) Board
M032Z	23781250	GREEN DRIVE (CRT) Board
M033Z	23781251	BLUE DRIVE (CRT) Board
M034Z	23781252	SVM Board
M035Z	23781253	RMT IN Board
M036Z	23781254	FRONT CONT Board
M037Z	23781255	FRONT IN Board
M038Z	23781256	AC IN Board
M039Z	23781257	DPC Board
U401	23781241	DEF/POWER Board
U701	23781240	DIGITAL-CONV. Board
U801	23781246	CONV/POWER2 Board
U802	23781247	AC-IN-1 Board
U901	23781248	SIGNAL Board
U901	23781242	SIGNAL Board
UM01	23781243	TEXT/RGB SW Board
UV01	23781244	A/V Board
UZ01	23781245	COMB/SECAM Board
H002	23148262	MVCS45,Multi IF MPX APRO Module
ZY01	23148264	Multi PIP Module
		PB7668 ( AV-48PRO ONLY )
		PB7669
		PB7670

## CABINET REPLACEMENT



**CABINET REPLACEMENT PARTS LIST(Refer to P59,60 MECHANICAL DISASSEMBLY)**

⚠	Location No.	Parts No.	Description
	A102	23421707	Front Cover
	A171	23805157	Handle
	A175	23436566	Caster Ass'y
	A201	23519301	Proper Bezel
	A202	23519818	Speaker Grille ( Inc. Brand Mark)
	A205	23885172	Control Panel
	A206	23444834	Button Power
	A207	23836498	Spring Coil
	A210	23433036	Theater Mark
	A292	23421833	Door Proper
⚠	A296	23451204	Push Catch
⚠	A401	23822829	Back Board
	K103	23430111	Lens Assembly
	K501	23837497	Lenticular Sheet
	K502	23837435	Fresnel Sheet
	K601	23430116	MIRROR
	B251	23560714	Model No.Label (AV-48PRO)
	B251	23560767	Model No.Label (AV-48PROX)

## CHASSIS REPLACEMENT PARTS LIST

Location No.	Part No.	Description	Location No.	Part No.	Description
<b>CAPACITORS</b>					
C101	24796479	EL, 4.7μF, ±20%, 35V	C340	24666100	EL, 10μF, ±20%, 16V
C102	24763221	EL, 220μF, ±20%, 16V	C343	24591103	PF, 0.01μF
C103	24212103	CD, 100μF, ±10%	C350	24591104	PF, 0.1μF
C104	24794470	EL, 47μF, ±20%, 16V	C351	24666222	EL, 2200μF, ±20%, 16V
C105	24474102	CD, 1000pF, ±10%	C370	24666101	EL, 100μF, ±20%, 16V
C106	24797100	EL, 10μF, ±20%, 50V	C371	24668100	EL, 10μF, ±20%, 35V
C107	24763221	EL, 220μF, ±20%, 16V	C401	24567104	PF, 0.1μF
C111	24763221	EL, 220μF, ±20%, 16V	C403	24591203	PF, 0.02μF
C112	24212102	CD, 1000pF, ±10%	C404	24797229	EL, 2.2μF, ±20%, 50V
C113	24232103	CD, 0.01μF, +80%, -20%	C413	24214821	CD, 820pF, ±10%, 500V
C114	24763101	EL, 100μF, ±20%, 16V	C415	24591392	PF, 3900pF
C115	24232103	CD, 0.01μF, +80%, -20%	C416	24678100	EL, 10μF, ±20%, 200V
C201	24794100	EL, 10μF, ±20%, 16V	C417	24214391	CD, 390pF, ±10%, 500V
C203	24567104	PF, 0.1μF	C418	24095883	PF, 0.015μF, ±3%, 630V
C204	24797010	EL, 1μF, ±20%, 50V	C419	24095803	PF, 0.062μF, 400V
C205	24206229	EL, 2.2μF, 50V	C420	24666101	EL, 100μF, ±20%, 16V
C206	24794100	EL, 10μF, ±20%, 16V	C423	24095779	PF, 0.62μF, 400V
C207	24436390	CD, 39pF	C430	24232103	CD, 0.01μF, +80%, -20%
C208	24436390	CD, 39pF	C431	24794101	EL, 100μF, ±20%, 18V
C209	24436390	CD, 39pF	C440	24082323	PF, 1000pF, ±3%, 1500V
C212	24794100	EL, 10μF, ±20%, 16V	C441	24095787	PF, 0.3μF, 400V
C213	24591334	PF, 0.33μF	C443	24082348	PF, 6800pF, ±3%, 1500V
C303	24214471	CD, 470pF, ±10%, 500V	C444	24082287	PF, 5100pF, ±3%, 1800V
C305	24617912	EL, 2.2μF, ±10%, 50V	C445	2428473	PF, 0.047μF, 200V
C306	24668332	EL, 3300pF, ±20%, 35V	C446	24679330	EL, 33μF, ±20%, 250V
C307	24693473	PF, 0.047μF, 100V	C447	24667102	EL, 1000μF, ±20%, 25V
C308	24668221	EL, 220μF, ±20%, 35V	C448	24640908	EL, 33μF, ±20%, 160V
C309	24212101	CD, 100pF, ±10%	C458	24667100	EL, 10μF, ±20%, 25V
C310	24669222	EL, 2200μF, ±20%, 50V	C459	24669478	EL, 0.47μF, ±20%, 50V
C311	24214561	CD, 560pF, ±10%, 500V	C460	24668331	EL, 330μF, ±20%, 35V
C313	24082057	PF, 0.22μF, 100V	C463	24212152	CD, 1500pF, ±10%
C314	24232103	CD, 0.01μF, +80%, -20%	C464	24640872	EL, 10μF, ±20%, 100V
C315	24591103	PF, 0.01μF (M0392)	C465	24591332	PF, 3300pF
C315	24797229	EL, 2.2μF, ±20%, 50V (U901)	C467	24820183	PF, 0.018μF, 630V
C318	24617026	EL, 820μF, ±20%, 16V	C468	24567474	PF, 0.47μF
C319	24591102	PF, 1000pF	C470	24666220	EL, 22μF, ±20%, 16V
C320	24669101	EL, 100μF, ±20%, 50V	C471	24669479	EL, 4.7μF, ±20%, 50V
C321	24591203	PF, 0.02μF			
C322	24617912	EL, 2.2μF, ±10%, 50V			
C323	24591224	PF, 0.22μF			
C328	24591683	PF, 0.068μF			

Location No.	Part No.	Description	Location No.	Part No.	Description
C472	24567474	PF, 0.47μF	C731	24766010	EL, 1.0μF, ±20%, 50V
C473	24567474	PF, 0.47μF	C732	24550822	PF, 8200pF
C481	24567104	PF, 0.1μF	C735	24092293	Chip, 0.1μF, +80%,-20%, 25V
C482	24591152	PF, 1500pF	C736	24794470	EL, 47μF, ±20%, 16V
C483	24567224	PF, 0.22μF	C739	24092293	Chip, 0.1μF, +80%,-20%, 25V
C485	24669101	EL, 100μF, ±20%, 50V	C740	24092293	Chip, 0.1μF, +80%,-20%, 25V
C493	24591124	PF, 0.12μF	C741	24794470	EL, 47μF, ±20%, 16V
C501	24232103	CD, 0.01μF, +80%,-20%	C742	24794470	EL, 47μF, ±20%, 16V
C502	24232103	CD, 0.01μF, +80%,-20%	C743	24092293	Chip, 0.1μF, +80%,-20%, 25V
C503	24763101	EL, 100μF, ±20%, 16V	C744	24092293	Chip, 0.1μF, +80%,-20%, 25V
C504	24591222	PF, 2200pF	C745	24794470	EL, 47μF, ±20%, 16V
C505	24353120	CD, 12pF	C746	24794470	EL, 47μF, ±20%, 16V
C507	24353120	CD, 12pF	C747	24092293	Chip, 0.1μF, +80%,-20%, 25V
C508	24794100	EL, 10μF, ±20%, 16V	C748	24092293	Chip, 0.1μF, +80%,-20%, 25V
C509	24763101	EL, 100μF, ±20%, 16V	C749	24794470	EL, 47μF, ±20%, 16V
C510	24763101	EL, 100μF, ±20%, 16V	C750	24794470	EL, 47μF, ±20%, 16V
C511	24232103	CD, 0.01μF, +80%,-20%	C756	24781330	Chip, 33pF, SL
C512	24206228	EL, 0.22μF, 50V	C761	24590182	PF, 1800pF
C513	24232103	CD, 0.01μF, +80%,-20%	C762	24590562	PF, 5600pF
C514	24567104	PF, 0.1μF	C763	24774391	Chip, 390pF
C515	24567104	PF, 0.1μF	C765	24590182	PF, 1800pF
C517	24353010	CD, 1pF	C766	24590562	PF, 5600pF
C519	24353010	CD, 1pF	C767	24774391	Chip, 390pF
C520	24436561	CD, 560pF	C769	24590182	PF, 1800pF
C521	24353181	CD, 180pF	C770	24590562	PF, 5600pF
C530	24212102	CD, 1000pF, ±10%	C771	24774391	Chip, 390pF
C531	24436151	CD, 150pF	C773	24590182	PF, 1800pF
C601	24591102	PF, 1000pF	C774	24590562	PF, 5600pF
C602	24591102	PF, 1000pF	C775	24774391	Chip, 390pF
C603	24797100	EL, 10μF, ±20%, 50V	C777	24590182	PF, 1800pF
C604	24797100	EL, 10μF, ±20%, 50V	C778	24590562	PF, 5600pF
C605	24795101	EL, 100μF, ±20%, 25V	C779	24774391	Chip, 390pF
C606	24795101	EL, 100μF, ±20%, 25V	C781	24590182	PF, 1800pF
C607	24591104	PF, 0.1μF	C782	24590562	PF, 5600pF
C608	24591104	PF, 0.1μF	C783	24774391	Chip, 390pF
C609	24669100	EL, 1000pF, ±20%, 50V	C795	24761221	EL, 220μF, ±20%, 6.3V
C610	24669102	EL, 1000pF, ±20%, 50V	C798	24763101	EL, 100μF, ±20%, 16V
C611	24795221	EL, 220μF, ±20%, 25V	C799	24763101	EL, 100μF, ±20%, 16V
C612	24794221	EL, 220μF, ±20%, 16V	△C801	24082374	PF, 0.22μF, AC250V
C613	24797478	EL, 0.47μF, ±20%, 50V	△C802	24082318	PF, 0.1μF, ±20%, AC250V
C614	24797478	EL, 0.47μF, ±20%, 50V	△C803	24082194	PF, 0.22μF, ±20%, AC250V
C664	24797479	EL, 4.7μF, ±20%, 50V	△C804	24082374	PF, 0.22μF, AC250V
C680	24669471	EL, 470μF, ±20%, 50V	C805	24082281	CD, 4700pF, ±20%, AC250V
C681	24591104	PF, 0.1μF	C806	24092281	CD, 4700pF, ±20%, AC250V
C701	24781330	Chip, 33pF, SL	C808	24669221	EL, 220μF, ±20%, 50V
C702	24781330	Chip, 33pF, SL	C809	24214471	CD, 470pF, ±10%, 500V
C711	24206100	EL, 10μF, 50V	C810	24086043	EL, 820μF, ±20%, 450V
C714	24092293	Chip, 0.1μF, +80%,-20%, 25V	△C811	24092567	CD, 1000pF ±20%, AC250V (U401)
C715	24092441	Chip, 1μF, +80%,-20%, 16V	△C811	24092565	CD, 470pF ±10%, AC250V (U802)
C716	248185822	Chip, 8200pF, ±10%	△C812	24092565	CD, 470pF, ±10%, AC250V
C717	24774470	Chip, 47pF, CH	△C815	24094653	CD, 220pF, ±20%, AC400V
C718	24774470	Chip, 47pF, CH	C816	24667221	EL, 220μF, ±20%, 25V
C719	24794101	EL, 100μF, ±20%, 16V	C817	24092341	CD, 470pF, ±10%, 2kV
C720	24092293	Chip, 0.1μF, +80%,-20%, 25V	C818	24095931	PF, 2200pF, 1250V
C721	24590104	PF, 0.1μF	△C819	24092565	CD, 470pF, ±10%, AC250V
C722	24092293	Chip, 0.1μF, +80%,-20%, 25V	C820	24092343	CD, 680pF, ±10%, 2kV
C724	24092293	Chip, 0.1μF, +80%,-20%, 25V	△C821	24082374	PF, 0.22μF, AC250V
C725	24092293	Chip, 0.1μF, +80%,-20%, 25V	C829	24590152	PF, 1500pF
C726	24092293	Chip, 0.1μF, +80%,-20%, 25V	C832	24539474	PF, 0.47μF
C727	24092293	Chip, 0.1μF, +80%,-20%, 25V	C833	24669479	EL, 4.7μF ±20%, 50V (U401)
C728	24763221	EL, 220μF, ±20%, 16V	C833	24539474	PF, 0.47μF (U901)
C729	24092293	Chip, 0.1μF, +80%,-20%, 25V	C834	24539334	PF, 0.33μF
C730	24590104	PF, 0.1μF	C835	24203470	EL, 47μF, ±20%, 16V
			C836	24232103	CD, 0.01μF, +80%,-20%

Location No.	Part No.	Description
R7791	24552681	OMF, 680 ohm, 1/2W
R7792	24366471	CF, 470 ohm
R7793	24366473	CF, 47k ohm
R7795	24366103	CF, 10k ohm
R7796	24366473	CF, 47k ohm
R7801	24366472	CF, 4700 ohm
R7802	24366103	CF, 10k ohm
R7803	24366473	CF, 47k ohm
R7804	24366103	CF, 10k ohm
R7807	24366153	CF, 15k ohm
RA01	24366470	CF, 47 ohm
RA02	24366272	CF, 2700 ohm
RA03	24366102	CF, 1k ohm
RA04	24366102	CF, 1k ohm
RA05	24366102	CF, 1k ohm
RA07	24366102	CF, 1k ohm
RA08	24366102	CF, 1k ohm
RA13	24366682	CF, 6800 ohm
RA16	24366102	CF, 1k ohm
RA17	24366102	CF, 1k ohm
RA18	24366102	CF, 1k ohm
RA22	24366331	CF, 330 ohm
RA23	24366331	CF, 330 ohm
RA24	24366331	CF, 330 ohm
RA25	24366101	CF, 100 ohm
RA26	24366102	CF, 1k ohm
RA27	24366102	CF, 1k ohm
RA33	24366103	CF, 10k ohm
RA35	24366102	CF, 1k ohm
RA36	24366472	CF, 4700 ohm
RA37	24366101	CF, 100 ohm
RA38	24366101	CF, 100 ohm
RA40	24366331	CF, 330 ohm
RA41	24366331	CF, 330 ohm
RA61	24366103	CF, 10k ohm
RA62	24366103	CF, 10k ohm
RA67	24366472	CF, 4700 ohm
RA68	24366472	CF, 4700 ohm
RA70	24366333	CF, 33k ohm
RA71	24366683	CF, 68k ohm
RA72	24366223	CF, 22k ohm
RA73	24366103	CF, 10k ohm
RA75	24366333	CF, 33k ohm
RA76	24366103	CF, 10k ohm (M036Z)
RA76	24366102	CF, 1k ohm (U901)
RA77	24366223	CF, 22k ohm
RA79	24366332	CF, 3300 ohm
RA80	24366332	CF, 3300 ohm
RA85	24366101	CF, 100 ohm
RA86	24366101	CF, 100 ohm
RB01	24366271	CF, 270 ohm
RB02	24366521	CF, 220 ohm
RB03	24366101	CF, 100 ohm
RB04	24366223	CF, 22k ohm
RB05	24366471	CF, 470 ohm
RB09	24366470	CF, 47 ohm
RB11	24366103	CF, 10k ohm
RB30	24366103	CF, 10k ohm
RB40	24366103	CF, 10k ohm
RB41	24366821	CF, 820 ohm
RB42	24366153	CF, 15k ohm
RB43	24366103	CF, 10k ohm
RB44	24366103	CF, 10k ohm
RB45	24366101	CF, 100 ohm

Location No.	Part No.	Description
RB61	24366473	CF, 47k ohm
RB62	24366222	CF, 2200 ohm
RB63	24366473	CF, 47k ohm
RB64	24366473	CF, 47k ohm
RB65	24366104	CF, 100k ohm
RB66	24366222	CF, 2200 ohm
RB67	24366473	CF, 47k ohm
RB68	24366103	CF, 10k ohm
RB69	24366332	CF, 3300 ohm
RB70	24366562	CF, 5600 ohm
RB71	24366473	CF, 47k ohm
RB72	24366223	CF, 22k ohm
RB90	24366472	CF, 4700 ohm
RB91	24366472	CF, 4700 ohm
RB92	24366101	CF, 100 ohm
RB93	24366101	CF, 100 ohm
RB94	24366472	CF, 4700 ohm
RB95	24366101	CF, 100 ohm
RB96	24366101	CF, 100 ohm
RB97	24366472	CF, 4700 ohm
RB98	24366101	CF, 100 ohm
RD80	24366822	CF, 8200 ohm
RD82	24366472	CF, 4700 ohm
RD83	24366102	CF, 1k ohm
RG01	24366223	CF, 22k ohm
RG02	24366223	CF, 22k ohm
RG03	24366101	CF, 100 ohm
RG04	24366101	CF, 100 ohm
RG09	24366472	CF, 4700 ohm
RG10	24366822	CF, 8200 ohm
RG11	24366472	CF, 4700 ohm
RG12	24366822	CF, 8200 ohm
RQ01	24366102	CF, 1k ohm
RQ02	24366475	CF, 4.7M ohm
RQ03	24366102	CF, 1k ohm
RQ04	24366511	CF, 510 ohm
RQ05	24366471	CF, 470 ohm
RQ06	24366471	CF, 470 ohm
RQ07	24366103	CF, 10k ohm
RQ08	24366102	CF, 1k ohm
RQ09	24366102	CF, 1k ohm
RQ10	24366102	CF, 1k ohm
RQ11	24366561	CF, 560 ohm
RQ12	24366561	CF, 560 ohm
RQ13	24366203	CF, 20k ohm
RQ14	24366273	CF, 27k ohm
RR01	24366472	CF, 4700 ohm
RR02	24366472	CF, 4700 ohm
RR03	24366472	CF, 4700 ohm
RR100	24366102	CF, 1k ohm
RR101	24366102	CF, 1k ohm
RR102	24366102	CF, 1k ohm
RR12	24366223	CF, 22k ohm
RR17	24366102	CF, 1k ohm
RR18	24366102	CF, 1k ohm
RR21	24366103	CF, 10k ohm
RR22	24366473	CF, 47k ohm
RR23	24366101	CF, 100 ohm
RR24	24366101	CF, 100 ohm
RR25	24366101	CF, 100 ohm
RR26	24366101	CF, 100 ohm
RR27	24366473	CF, 47k ohm
RR28	24366473	CF, 47k ohm
RR29	24366473	CF, 47k ohm

Location No.	Part No.	Description
RR30	24366512	CF, 5100 ohm
RR33	24366821	CF, 820 ohm
RR34	24366821	CF, 820 ohm
RR35	24366821	CF, 820 ohm
RR36	24366332	CF, 3300 ohm
RR37	24366332	CF, 3300 ohm
RR38	24366332	CF, 3300 ohm
RR39	24366222	CF, 2200 ohm
RR40	24366122	CF, 1200 ohm (U901)
RR40	24366883	CF, 68k ohm (UM01)
RR41	24366103	CF, 10k ohm (UM01)
RR41	24366272	CF, 2700 ohm (U901)
RR42	24366122	CF, 1200 ohm
RR43	24366272	CF, 2700 ohm
RR44	24366122	CF, 1200 ohm
RR45	24366272	CF, 2700 ohm
RR49	24366222	CF, 2200 ohm
RR95	24366331	CF, 330 ohm
RR96	24366331	CF, 330 ohm
RR97	24366331	CF, 330 ohm
RR98	24366331	CF, 330 ohm
RR99	24366102	CF, 1k ohm
RS01	24366101	CF, 100 ohm
RS03	24366101	CF, 100 ohm
RS04	24366101	CF, 100 ohm
RS05	24366102	CF, 1k ohm
RS07	24366472	CF, 4700 ohm
RS08	24366472	CF, 4700 ohm
RS09	24366472	CF, 4700 ohm
RS10	24366472	CF, 4700 ohm
RS11	24366472	CF, 4700 ohm
RS12	24366472	CF, 4700 ohm
RS13	24366101	CF, 100 ohm
RS14	24366101	CF, 100 ohm
RS25	24366103	CF, 10k ohm
RS26	24366103	CF, 10k ohm
RS27	24366561	CF, 560 ohm
RS28	24366561	CF, 560 ohm
RS29	24366103	CF, 10k ohm
RS30	24366103	CF, 10k ohm
RS31	24366102	CF, 1k ohm
RS32	24366103	CF, 10k ohm
RS33	24366101	CF, 100 ohm
RS34	24366102	CF, 1k ohm
RS35	24366101	CF, 100 ohm
RS36	24366102	CF, 1k ohm
RS45	24366393	CF, 39k ohm
RS46	24366393	CF, 39k ohm
RS601	24366101	CF, 100 ohm
RS602	24366101	CF, 100 ohm
RS603	24366102	CF, 1k ohm
RS604	24366102	CF, 1k ohm
RS605	24366561	CF, 560 ohm
RS606	24366561	CF, 560 ohm
RS607	24366104	CF, 100k ohm
RS608	24366104	CF, 100k ohm
RS609	24366103	CF, 10k ohm
RS610	24366103	CF, 10k ohm
RS611	24366103	CF, 10k ohm
RS612	24366104	CF, 100k ohm
RT01	24366332	CF, 3300 ohm
RT02	24366100	CF, 10k ohm
RT03	24366101	CF, 100 ohm
RT04	24366273	CF, 27k ohm

Location No.	Part No.	Description
RT05	24366103	CF, 10k ohm
RT06	24366103	CF, 10k ohm
RT07	24366102	CF, 1k ohm
RT08	24366103	CF, 10k ohm
RT09	24366101	CF, 100 ohm
RT10	24366472	CF, 4700 ohm
RT11	24366392	CF, 3900 ohm
RT12	24366682	CF, 6800 ohm
RT13	24366103	CF, 10k ohm
RT14	24366222	CF, 2200 ohm
RT15	24366101	CF, 100 ohm
RT16	24366101	CF, 100 ohm
RT17	24366102	CF, 1k ohm
RT18	24366152	CF, 1500 ohm
RT19	24366122	CF, 1200 ohm
RT20	24366471	CF, 4700 ohm
RT21	24366561	CF, 560 ohm
RT22	24366271	CF, 270 ohm
RT23	24366821	CF, 820 ohm
RV01	24366101	CF, 100 ohm
RV02	24366101	CF, 100 ohm
RV03	24366101	CF, 100 ohm
RV04	24366101	CF, 100 ohm
RV05	24366101	CF, 100 ohm
RV06	24366101	CF, 100 ohm
RV09	24366101	CF, 100 ohm
RV10	24366101	CF, 100 ohm
RV11	24366101	CF, 100 ohm
RV12	24366101	CF, 100 ohm
RV13	24366101	CF, 100 ohm
RV14	24366101	CF, 100 ohm
RV15	24366101	CF, 100 ohm
RV16	24366101	CF, 100 ohm
RV17	24366101	CF, 100 ohm
RV19	24366101	CF, 100 ohm
RV20	24366332	CF, 3300 ohm
RV35	24366103	CF, 10k ohm
RV37	24366750	CF, 75 ohm
RV40	24366822	CF, 8200 ohm
RV41	24366472	CF, 4700 ohm
RV42	24366471	CF, 4700 ohm
RV43	24366471	CF, 4700 ohm
RV44	24366821	CF, 8200 ohm
RV45	24366151	CF, 150 ohm
RV46	24366102	CF, 1k ohm
RV47	24366102	CF, 1k ohm
RV48	24366911	CF, 910 ohm
RV49	24366102	CF, 1k ohm
RV50	24366682	CF, 6800 ohm
RV51	24366822	CF, 8200 ohm
RV52	24366101	CF, 100 ohm
RV53	24366471	CF, 470 ohm
RV54	24366471	CF, 470 ohm
RV56	24366511	CF, 510 ohm
RV57	24366102	CF, 1k ohm
RV58	24366911	CF, 910 ohm
RV59	24366102	CF, 1k ohm
RV60	24366822	CF, 6800 ohm
RV61	24366750	CF, 75 ohm
RV65	24366103	CF, 10k ohm
RV67	24366760	CF, 75 ohm
RV68	24366103	CF, 10k ohm
RV70	24366750	CF, 75 ohm
RV75	24366750	CF, 75 ohm

Location No.	Part No.	Description
RV76	24366103	CF, 10k ohm
RV77	24366101	CF, 100 ohm
RV78	24366181	CF, 180 ohm
RV80	24366682	CF, 6800 ohm
RV84	24366101	CF, 100 ohm
RV85	24366201	CF, 200 ohm
RV89	24366750	CF, 75 ohm
RV91	24562101	OMF, 100 ohm, 1/2W
RV95	24366471	CF, 470 ohm
RV100	24366101	CF, 100 ohm
RV101	24366272	CF, 2700 ohm
RV102	24366271	CF, 270 ohm
RV103	24366473	CF, 47k ohm
RV104	24366100	CF, 10 ohm
RV105	24366272	CF, 2700 ohm
RV106	24366223	CF, 22k ohm
RV107	24366223	CF, 22k ohm
RV108	24366103	CF, 10k ohm
RV109	24366103	CF, 10k ohm
RV110	24366123	CF, 12k ohm
RV111	24366103	CF, 10k ohm
RW02	24366222	CF, 2200 ohm
RW09	24366563	CF, 56k ohm
RW13	24366393	CF, 39k ohm
RW14	24552121	OMF, 120 ohm, 1/2W
RW15	24366223	CF, 22k ohm
RW16	24366273	CF, 27k ohm
RW17	24366333	CF, 33k ohm
RW18	24366222	CF, 2200 ohm
RW19	24366392	CF, 3900 ohm
RW20	24366392	CF, 3900 ohm
RW21	24366102	CF, 1k ohm
RW22	24552471	OMF, 470 ohm, 1/2W
RW23	24366471	CF, 470 ohm
RW24	24366470	CF, 47 ohm
RW25	24366182	CF, 1800 ohm
RW30	24552100	OMF, 10 ohm, 1/2W
RW31	24552331	OMF, 330 ohm, 1/2W
RW32	24366820	CF, 82 ohm
RW33	24366683	CF, 68k ohm
RW34	24366820	CF, 82 ohm
RW35	24366683	CF, 68k ohm
RW36	24552620	OMF, 62 ohm, 1/2W
RW37	24366152	CF, 1500 ohm
RW38	24366123	CF, 12k ohm
RW39	24366152	CF, 1500 ohm
RW40	24552620	OMF, 62 ohm, 1/2W
RW41	24321279	MF, 2.7 ohm, 1/2W
RW42	24321279	MF, 2.7 ohm, 1/2W
RW43	24554221	OMF, 220 ohm, 2W
RW44	24366122	CF, 1200 ohm
RW45	24366122	CF, 1200 ohm
RY604	24366123	CF, 12k ohm
RY605	24366682	CF, 6800 ohm
RY606	24366333	CF, 33k ohm
RY607	24366392	CF, 3900 ohm
RY608	24366123	CF, 12k ohm
RY609	24366102	CF, 1k ohm
RY610	24366104	CF, 100k ohm
RY611	24366473	CF, 47k ohm
RY612	24366102	CF, 1k ohm
RY613	24382121	OMF, 120 ohm, 1W
RY614	24366103	CF, 10k ohm
RY615	24366223	CF, 22k ohm

Location No.	Part No.	Description
RY616	24366104	CF, 100k ohm
RY617	24366183	CF, 18k ohm
RY631	24366100	CF, 10 ohm
RY632	24366100	CF, 10 ohm
RZ01	24366471	CF, 470 ohm
RZ02	24366152	CF, 1500 ohm
RZ04	24366332	CF, 3300 ohm
RZ05	24366332	CF, 3300 ohm
RZ06	24366821	CF, 820 ohm
RZ07	24366822	CF, 8200 ohm
RZ08	24366332	CF, 3300 ohm
RZ12	24366471	CF, 470 ohm
RZ14	24366123	CF, 12k ohm
RZ15	24365392	CF, 3900 ohm
RZ16	24366122	CF, 1200 ohm
RZ17	24366331	CF, 330 ohm
RZ18	24366821	CF, 820 ohm
RZ19	24366471	CF, 470 ohm
RZ20	24366122	CF, 1200 ohm
RZ22	24366101	CF, 100 ohm
RZ23	24366821	CF, 820 ohm
RZ24	24366821	CF, 820 ohm
RZ25	24366101	CF, 100 ohm
RZ26	24366101	CF, 100 ohm
RZ28	24366564	CF, 560k ohm
RZ29	24366331	CF, 330 ohm
RZ30	24366331	CF, 330 ohm
RZ31	24366102	CF, 1k ohm

### COILS & TRANSFORMERS

L101	23289101	Coil, Peaking, TRF4101AF
L102	23289100	Coil, Peaking, TRF4100AF
L103	23289100	Coil, Peaking, TRF4100AF
L111	23237999	Coil, Peaking, TRF4109AC
L112	23237999	Coil, Peaking, TRF4109AC
L115	23103824	Coil, TEM2028K
L117	23237983	Coil, Peaking, TRF4220AC
L301	23103859	Coil (Ferrite Bead), TEM2011
L303	23237975	Coil, Peaking, TRF4101AC
L400	23289100	Coil, Peaking, TRF4100AF
L401	23221746	Coil, Choke, TLN315D
L402	23289220	Coil, Peaking, TRF4220AF
L441	23233947	Coil, Linearity, TLN214G
L450	23233961	Coil, Width, TLN2184
L461	23248175	Coil, Choke, TLN335AD
△L462	23231135	Deflection Yoke, TDV707AS(R)
△L463	23231136	Deflection Yoke, TDV707AS(G)
△L464	23231137	Deflection Yoke, TDV707AS(B)
L465	23103880	Coil (Ferrite Bead), TEM2011Y
L472	23102445	Magnet, MAG-1096
L473	23102445	Magnet, MAG-1096
L474	23102445	Magnet, MAG-1096
L501	23289470	Coil, Peaking, TRF4470AF
L502	23289470	Coil, Peaking, TRF4470AF
L503	23289470	Coil, Peaking, TRF4470AF
L504	23289479	Coil, Peaking, TRF44R7AF
L701	23238562	Coil, Peaking, TRF4109AJ
L702	23238562	Coil, Peaking, TRF4109AJ
L707	23238562	Coil, Peaking, TRF4109AJ
L708	23238562	Coil, Peaking, TRF4109AJ
L709	23238562	Coil, Peaking, TRF4109AJ
L710	23238562	Coil, Peaking, TRF4109AJ
L711	23238562	Coil, Peaking, TRF4109AJ
L712	23238562	Coil, Peaking, TRF4109AJ

Location No.	Part No.	Description
L713	23238562	Coil, Peaking, TRF4109AJ
L714	23238562	Coil, Peaking, TRF4109AJ
L719	23232878	Coil, Variable, TRF3503K
L720	23289102	Coil, Peaking, TRF4102AJ
L721	23237805	Coil, Peaking, TRF4222
L722	23289102	Coil, Peaking, TRF4102AJ
L723	23237805	Coil, Peaking, TRF4222
L724	23289102	Coil, Peaking, TRF4102AJ
L725	23237805	Coil, Peaking, TRF4222
L726	23289102	Coil, Peaking, TRF4102AJ
L727	23237805	Coil, Peaking, TRF4222
L728	23289102	Coil, Peaking, TRF4102AJ
L729	23237805	Coil, Peaking, TRF4222
L730	23289102	Coil, Peaking, TRF4102AJ
L731	23237805	Coil, Peaking, TRF4222
L737	23289560	Coil, Peaking, TRF4560
L738	23289560	Coil, Peaking, TRF4560
L739	23289560	Coil, Peaking, TRF4560
L740	23289560	Coil, Peaking, TRF4560
L742	23103866	Chip (Ferrite Bead), TEM2105T
L743	23103866	Chip (Ferrite Bead), TEM2105T
L744	23103866	Chip (Ferrite Bead), TEM2105T
L745	23103866	Chip (Ferrite Bead), TEM2105T
L746	23103866	Chip (Ferrite Bead), TEM2105T
L747	23103866	Chip (Ferrite Bead), TEM2105T
L748	23103866	Chip (Ferrite Bead), TEM2105T
L749	23103866	Chip (Ferrite Bead), TEM2105T
L811	23103859	Coil (Ferrite Bead), TEM2011
L812	23103859	Coil (Ferrite Bead), TEM2011
L813	23103859	Coil (Ferrite Bead), TEM2011
L814	23221747	Coil, Choke, TRF9253D
L851	23103859	Coil (Ferrite Bead), TEM2011
L852	23103859	Coil (Ferrite Bead), TEM2011
L853	23103859	Coil (Ferrite Bead), TEM2011
L854	23103859	Coil (Ferrite Bead), TEM2011
L855	23103859	Coil (Ferrite Bead), TEM2011
L856	23103859	Coil (Ferrite Bead), TEM2011
L857	23103859	Coil (Ferrite Bead), TEM2011
L858	23103859	Coil (Ferrite Bead), TEM2011
L859	23103859	Coil (Ferrite Bead), TEM2011
L860	23103859	Coil (Ferrite Bead), TEM2011
L870	23238711	Coil, Peaking, TRF4180AJ
L882	23280016	Coil, Peaking, TRF4100AZ
L883	23103859	Coil (Ferrite Bead), TEM2011
L885	23248073	Coil, Choke, TLN3299D
L886	23103859	Coil (Ferrite Bead), TEM2011
L888	23103859	Coil (Ferrite Bead), TEM2011
L889	23248087	Coil, Choke, TLN3312D
L891	23103859	Coil (Ferrite Bead), TEM2011
L896	23103859	Coil (Ferrite Bead), TEM2011
L911	23237987	Coil, Peaking, TRF4100AC
L961	23237987	Coil, Peaking, TRF4100AC
L962	23237991	Coil, Peaking, TRF4479AC
L963	23237975	Coil, Peaking, TRF4101AC
L7701	23103859	Coil (Ferrite Bead), TEM2011
L7702	23103859	Coil (Ferrite Bead), TEM2011
L7703	23103859	Coil (Ferrite Bead), TEM2011
L7704	23103859	Coil (Ferrite Bead), TEM2011
L7705	23103859	Coil (Ferrite Bead), TEM2011
L7706	23103859	Coil (Ferrite Bead), TEM2011
L7707	23103859	Coil (Ferrite Bead), TEM2011
L7708	23103859	Coil (Ferrite Bead), TEM2011
LA01	23289100	Coil, Peaking, TRF4100AF
LB01	23262996	Coil, IF, TRF1169D

Location No.	Part No.	Description
LQ01	23238709	Coil, Peaking, TRF4270AJ
LQ02	23238718	Coil, Peaking, TRF4479AJ
LQ03	23238718	Coil, Peaking, TRF4479AJ
LQ04	23238718	Coil, Peaking, TRF4479AJ
LT01	23289339	Coil, Peaking, TRF43R3AF
LT02	2328562	Coil, Peaking, TRF4109AJ
LT03	23289150	Coil, Peaking, TRF4150AF
LT04	23238714	Coil, Peaking, TRF4100AJ
LT05	23238714	Coil, Peaking, TRF4100AJ
LT06	23238714	Coil, Peaking, TRF4100AJ
LT07	23238714	Coil, Peaking, TRF4100AJ
LT08	23103859	Coil (Ferrite Bead), TEM2011
LT09	23238714	Coil, Peaking, TRF4100AJ
LT10	23238608	Coil, Peaking, TRF4229AJ
LT11	23238714	Coil, Peaking, TRF4100AJ
LT12	23238508	Coil, Peaking, TRF4229AJ
LT13	23238508	Coil, Peaking, TRF4229AJ
LT15	23238710	Coil, Peaking, TRF4220AJ
LV01	23103824	Coil, TEM2028K
LV02	23103824	Coil, TEM2028K
LV40	23238709	Coil, Peaking, TRF4270AJ
LV41	23289270	Coil, Peaking, TRF4270AF
LV44	23238705	Coil, Peaking, TRF4560AJ
LV45	23289150	Coil, Peaking, TRF4150AF
LV47	23289100	Coil, Peaking, TRF4100AF (UV01)
LV47	23238705	Coil, Peaking, TRF44580AJ (M2037Z)
LV48	23289100	Coil, Peaking, TRF4100AF
LV49	23289100	Coil, Peaking, TRF4100AF
LV50	23237983	Coil, Peaking, TRF4220AC
LW02	23261974	Coil, Choke, HC5-035
LW04	23103859	Coil (Ferrite Bead), TEM2011
LW05	23103859	Coil (Ferrite Bead), TEM2011
LY01	23289100	Coil, Peaking, TRF4100AF
LZ01	23238712	Coil, Peaking, TRF4150AJ
LZ02	23238716	Coil, Peaking, TRF4689AJ
LZ03	23238716	Coil, Peaking, TRF4689AJ
LZ04	23238709	Coil, Peaking, TRF4270AJ
LZ05	23238716	Coil, Peaking, TRF4689AJ
LZ06	23238709	Coil, Peaking, TRF4270AJ
LZ07	23238709	Coil, Peaking, TRF4270AJ
LZ08	23238707	Coil, Peaking, TRF4390AJ
LZ09	70131060	Filter, ZBF253D-00
LZ10	70131060	Filter, ZBF253D-00
LZ11	23238709	Coil, Peaking, TRF4270AJ
T400	23224364	Transformer, Focus, TLN2168AH
T401	23224367	Transformer, Horiz. Drive, TLN1098AH
▲T461Z	23236508	Transformer, Flyback, TFB3078ZD
▲TB01	23211700	Line Filter, TRF3209AQ
▲TB02	23211700	Line Filter, TRF3209AQ
▲TB03	23211666	Line Filter, TRF3197
▲TB04	23211002	Line Filter, TRF3173
▲TB06	23211666	Line Filter, TRF3197
▲TB62	23217325	Transformer, Converter, TPW3345AM
▲TB63	23217326	Transformer, Converter, TPW3346AM
<b>SEMICONDUCTORS</b>		
Q201	23114528	Transistor, 2SC1740S-Q
Q202	23114528	Transistor, 2SC1740S-Q
Q203	A6734590	Transistor, 2SC752(G)T-Y

Location No.	Part No.	Description
Q204	23114528	Transistor, 2SC1740S-Q
Q301	23319787	IC, LA7833S
Q302	B0384625	IC, TA8859CP
Q340	A6317440	Transistor, 2SC1815-Y
Q341	A6634053	Transistor, 2SA1015-Y/TE
Q350	A6317440	Transistor, 2SC1815-Y
Q361	A6634053	Transistor, 2SA1015-Y/TE
Q352	A6002030	Transistor, RN1203
Q353	A6002030	Transistor, RN1203
Q370	23114530	Transistor, 2SA933S-Q
Q402	A6330069	Transistor, 2SC2482 FA-1
Q404	A6872801	Transistor, 2SD2535(FA)
Q420	23314141	Transistor, 2SC3852
Q421	23114528	Transistor, 2SC1740S-Q
Q430	23314141	Transistor, 2SC3852
Q460	23314850	Transistor, 2SA1788-E
Q461	A6317440	Transistor, 2SC1815-Y
Q462	A6317440	Transistor, 2SC1815-Y
Q463	23114528	Transistor, 2SC1740S-Q
Q464	A6634053	Transistor, 2SA1015-Y/TE
Q470	23114528	Transistor, 2SC1740S-Q
Q480	23314246	Transistor, 2SC2023 LF-4
Q483	B0350510	IC, TA7548S
Q487	A6317440	Transistor, 2SC1815-Y
Q488	A6002040	Transistor, RN1204
Q489	A6012020	Transistor, RN2202
Q501	B0385673	IC, TA1222AN
Q502	23114528	Transistor, 2SC1740S-Q
Q503	23114528	Transistor, 2SC1740S-Q
Q510	23114528	Transistor, 2SC1740S-Q
Q601	23318413	IC, LA4282
Q612	23114530	Transistor, 2SA933S-Q
Q681	A6342206	Transistor, 2SC2878-A(TE
Q682	A6342206	Transistor, 2SC2878-A(TE
Q701	B0588213	IC, T7K64Z/4
Q703	23905014	IC, LC78816M
Q704	23905014	IC, LC78816M
Q705	23905014	IC, LC78816M
Q707	B0378550	IC, TA8667P
Q709	A6734690	Transistor, 2SC752(G)TM-Y
Q710	23314204	Transistor, 2SC2412K,Q
Q713	23905012	IC, CAT24C16
Q715	23319808	IC, M6218AP
Q717	23319808	IC, M6218AP
Q719	23319808	IC, M6218AP
Q751	23905094	IC, STK392-110
Q752	2390694	IC, STK392-110
Q754	23904621	IC, AN7805
Q755	23904625	IC, AN7805
Q756	23318841	IC, AN79M09F
Q757	23114528	Transistor, 2SC1740S-Q
Q768	23114528	Transistor, 2SC1740S-Q
Q759	23314530	Transistor, 2SA933S-Q
Q761	23114530	Transistor, 2SA933S-Q
Q762	23114528	Transistor, 2SC1740S-Q
Q764	B0487575	IC, TC74HC4050AP
Q765	23114528	Transistor, 2SC1740S-Q
Q766	23114528	Transistor, 2SC1740S-Q
Q767	B0470662	IC, TC4066BP
Q768	23314530	Transistor, 2SA933S-Q
Q769	23114528	Transistor, 2SC1740S-Q

Location No.	Part No.	Description
Q770	23114530	Transistor, 2SA933S-Q
Q771	A6533730	Transistor, 2SA1012-Z
Q771B	23035308	Screw, BTB3X8S2N
Q774	23114528	Transistor, 2SC1740S-Q
Q780	23114530	Transistor, 2SA933S-Q
Q781	23114528	Transistor, 2SC1740S-Q
Q782	23114528	Transistor, 2SC1740S-Q
Q801	23905084	IC, STR-S6709
Q802	23314141	Transistor, 2SC3852
Q803	23904247	IC, STR-S6708
Q804	23314141	Transistor, 2SC3852
Q826	A6645166	Photo Coupler, TLP721F(D4-G
Q828	A6645166	Photo Coupler, TLP721F(D4-G
Q829	A6534053	Transistor, 2SA1015-Y/TE
Q831	23904521	IC, AN7805
Q832	23904274	IC, PQ09RF11
Q835	23319941	IC, SI-3050C
Q836	A6317440	Transistor, 2SC1815-Y
Q837	A6317440	Transistor, 2SC1815-Y
Q845	A6002050	Transistor, RN1205
Q846	A6317440	Transistor, 2SC1815-Y
Q850	A6534053	Transistor, 2SA1015-Y/TE(U401)
Q850	A6317440	Transistor, 2SC1815-Y(U801)
Q851	23905251	IC, SE024N
Q852	23318293	IC, L78MR05
Q855	23114528	Transistor, 2SC1740S-Q
Q857	A6317440	Transistor, 2SC1815-Y
Q858	A6002050	Transistor, RN1205
Q859	A6317440	Transistor, 2SC1815-Y
Q860	A6000050	Transistor, RN1005
Q901	A678970A	Transistor, 2SC1569,X
Q902	A6734580	Transistor, 2SC752(G)TM-Y
Q911	A678970A	Transistor, 2SC1569,X
Q913	A6734590	Transistor, 2SC752(G)TM-Y
Q914	A6321265	Transistor, 2SC2120(Y)(TE)
Q921	A678970A	Transistor, 2SC1569,X
Q922	A6734590	Transistor, 2SC752(G)TM-Y
Q923	A6734590	Transistor, 2SC752(G)TM-Y
Q961	23114528	Transistor, 2SC1740S-Q
Q962	A6509154	Transistor, 2SA562TM-Y(T)
Q963	A6317440	Transistor, 2SC1815-Y
Q964	A6534053	Transistor, 2SA1015-Y/TE
Q965	A6317440	Transistor, 2SC1815-Y
Q966	A6534053	Transistor, 2SA1015-Y/TE
QA01	23906230	IC, 42P87CS38N-3489
QA02	23906244	IC, CAT24C08P
QB01	23114528	Transistor, 2SC1740S-Q
QB02	23114530	Transistor, 2SA933S-Q
QB03	A6002050	Transistor, RN1205
QB61	A6002040	Transistor, RN1204
QB62	A6002040	Transistor, RN1204
QB63	A6012030	Transistor, RN2203
QB64	23114528	Transistor, 2SC1740S-Q
QB65	23114528	Transistor, 2SC1740S-Q
QB66	A6002040	Transistor, RN1204
QB67	A6734590	Transistor, 2SC752(G)TM-Y
QB90	23904921	IC, JLC1563P
QB91	23904658	IC, UPD74HC32C
QD80	23114530	Transistor, 2SA933S-Q
QG01	B0385643	IC, TA1216AN
QQ01	B0385755	IC, TA1229N
QQ02	B0383881	IC, TA8772AN
QQ03	23114528	Transistor, 2SC1740S-Q
QQ04	23114528	Transistor, 2SC1740S-Q

Location No.	Part No.	Description
QR01	B0487584	IC, TC74HC4053AP
QR04	A6534053	Transistor, 2SA1015-Y(TE)
QR05	A6534053	Transistor, 2SA1015-Y(TE)
QR06	A6534053	Transistor, 2SA1015-Y(TE)
QR15	A6534053	Transistor, 2SA1015-Y(TE)
QR17	A6317440	Transistor, 2SC1815-Y
QR18	A6734590	Transistor, 2SC752(G)TM-Y
QR19	A6734590	Transistor, 2SC752(G)TM-Y
QR20	A6317440	Transistor, 2SC1815-Y
QR21	A6317440	Transistor, 2SC1815-Y
QR22	A6317440	Transistor, 2SC1815-Y
QS01	A6342206	Transistor, 2SC2878-A(TE)
QS02	A6342206	Transistor, 2SC2878-A(TE)
QS03	A6010040	Transistor, RN2004
QS04	23114528	Transistor, 2SC1740S-Q
QS05	23114528	Transistor, 2SC1740S-Q
QS601	23114528	Transistor, 2SC1740S-Q
QS602	23114528	Transistor, 2SC1740S-Q
QS603	A6342206	Transistor, 2SC2878-A(TE)
QS604	A6342206	Transistor, 2SC2878-A(TE)
QS605	A6010040	Transistor, RN2004
QT01	23904899	IC, SAA5281ZP/E
QT02	A6317440	Transistor, 2SC1815-Y
QT03	A6317440	Transistor, 2SC1815-Y
QT04	A6534053	Transistor, 2SA1015-Y(TE)
QT05	A6317440	Transistor, 2SC1815-Y
QT06	A6534053	Transistor, 2SA1015-Y(TE)
QV01	B0386650	IC, TA1218N
QV03	A6002030	Transistor, RN1203
QV05	A6002030	Transistor, RN1203
QV10	23114528	Transistor, 2SC1740S-Q
QV13	23114528	Transistor, 2SC1740S-Q
QV40	23114528	Transistor, 2SC1740S-Q
QV41	23114528	Transistor, 2SC1740S-Q
QV42	23114530	Transistor, 2SA933S-Q
QV43	A6534053	Transistor, 2SA1015-Y(TE)
QV44	23114528	Transistor, 2SC1740S-Q
QV45	23114528	Transistor, 2SC1740S-Q
QV46	23114530	Transistor, 2SA933S-Q
QV47	A6534053	Transistor, 2SA1015-Y(TE)
QV48	23114528	Transistor, 2SC1740S-Q
QV50	A6534053	Transistor, 2SA1015-Y(TE)
QV51	23114528	Transistor, 2SC1740S-Q
QV52	A6342206	Transistor, 2SC2878-A(TE)
QV05	A6317440	Transistor, 2SC1815-Y
QV06	A6317440	Transistor, 2SC1815-Y
QV07	A6734590	Transistor, 2SC752(G)TM-Y
QV08	23114528	Transistor, 2SC1740S-Q
QV10	23114530	Transistor, 2SA933S-Q
QV11	23314911	Transistor, 2SB1569A
QV12	23314914	Transistor, 2SD2400A
QV19	A6317440	Transistor, 2SC1815-Y
QW20	A6317440	Transistor, 2SC1815-Y
QY602	23319251	IC, MC1458P1
QY601	23318255	IC, $\mu$ PC1406HA
QY604	A6342206	Transistor, 2SC2878-A(TE)
QY605	23114530	Transistor, 2SA933S-Q
QY606	A6010040	Transistor, RN2004
ZQ01	B0410688	IC, TC9090AN
ZQ02	23319504	IC, MM1031XS
ZQ03	23114528	Transistor, 2SC1740S-Q
ZQ04	23114528	Transistor, 2SC1740S-Q
ZQ05	23114528	Transistor, 2SC1740S-Q
ZQ06	23114528	Transistor, 2SC1740S-Q

Location No.	Part No.	Description
D101	23316411	Diode, 1SS184
D201	23118859	Diode, 1SS133
D215	23118859	Diode, 1SS133
D216	23118859	Diode, 1SS133
D217	23118859	Diode, 1SS133
D218	23118859	Diode, 1SS133
D219	23118859	Diode, 1SS133
D220	23118859	Diode, 1SS133
D221	23316687	Diode, Zener, MTZJ9.1B
D301	23118094	Diode, EU2A
D302	23118094	Diode, EU2A
D303	23118859	Diode, 1SS133
D308	23118822	Diode, ERB12-02
D309	23118822	Diode, ERB12-02
D312	23118859	Diode, 1SS133
D315	23118859	Diode, 1SS133
D332	23316794	Diode, SC570A
D340	23118859	Diode, 1SS133
D341	23316675	Diode, Zener, MTZJ6.2B
D350	23118859	Diode, 1SS133
D351	23118859	Diode, 1SS133
D352	23118859	Diode, 1SS133
D363	23316672	Diode, Zener, MTZJ5.6B
D364	23118859	Diode, 1SS133
D370	23316672	Diode, Zener, MTZJ5.6B
D406	A7978850	Diode, S5295G
D408	23118338	Diode, RU4AM
D427	23316680	Diode, Zener, MTZJ7.5A
D430	23316670	Diode, Zener, MTZJ5.1C
D431	23118859	Diode, 1SS133
D432	23316670	Diode, Zener, MTZJ5.1C
D441	23316726	Diode, Zener, MTZJ15C
D442	A7568200	Diode, 1S1832
D443	23118338	Diode, RU4AM
D444	23118338	Diode, RU4AM
D458	23116774	Diode, Zener, RD6.2E(4)
D459	23118859	Diode, 1SS133
D460	A7568480	Diode, TVR-1G
D461	23316582	Diode, ERC20-06
D463	23118859	Diode, 1SS133
D464	23316718	Diode, Zener, MTZJ12A
D465	23316718	Diode, Zener, MTZJ12A
D467	A7568752	Diode, 1S1887A
D470	23118859	Diode, 1SS133
D471	A7568460	Diode, TVR-1B
D474	23118511	Diode, Zener, RD12ESAB2
D482	23118094	Diode, EU2A
D486	23316742	Diode, Zener, MTZJ24B
D487	23118094	Diode, EU2A
D488	23118859	Diode, 1SS133
D489	23316659	Diode, Zener, MTZJ3.6B
D501	23118859	Diode, 1SS133
D602	23118859	Diode, 1SS133
D603	23118859	Diode, 1SS133
D604	23118859	Diode, 1SS133
D605	23118859	Diode, 1SS133
D606	23118859	Diode, 1SS133
D611	23118859	Diode, 1SS133
D612	23118859	Diode, 1SS133
D613	23118859	Diode, 1SS133
D614	23118859	Diode, 1SS133
D701	23115537	Diode, 1SS131

Location No.	Part No.	Description
D702	23115537	Diode, ISS131
D703	23115537	Diode, ISS131
D704	23115537	Diode, ISS131
D801	23316784	Diode, RVB-1506
D803	23118094	Diode, EU2A
D804	23316315	Diode, Zener, UZ6.8BSB
D805	23118859	Diode, ISS133
D806	23118094	Diode, EU2A
D808	23118094	Diode, EU2A
D809	A7270200	Diode, Zener, 1Z6.2
D810	23118859	Diode, ISS133
D811	23118859	Diode, ISS133
D812	23118451	Diode, RU-4A
D815	23316339	Diode, Zener, UZ15BSB
D816	23118859	Diode, ISS133
D817	23316365	Diode, UZ305SD
D820	23118859	Diode, ISS133
D828	23118859	Diode, ISS133
D835	23118859	Diode, ISS133
D837	23316309	Diode, Zener, UZ6.8BSB
D850	23118173	Diode, RVB-406M-LFA
D852	23118094	Diode, EU2A
D853	23118094	Diode, EU2A
D854	23316309	Diode, Zener, UZ6.8BSB
D855	23316339	Diode, Zener, UZ15BSB
D856	23118094	Diode, EU2A
D857	23118859	Diode, ISS133
D858	23118094	Diode, EU2A
D859	23316315	Diode, Zener, UZ6.8BSB
D860	23118859	Diode, ISS133
D861	23316744	Diode, Zener, MTZJ24D
D862	23118859	Diode, ISS133
D863	23118094	Diode, EU2A
D864	23316475	Diode, FMP-G12S
D865	23316475	Diode, FMP-G12S
D867	23118094	Diode, EU2A
D868	23316475	Diode, FMP-G12S
D869	23118859	Diode, ISS133
D870	23118859	Diode, ISS133
D871	23118859	Diode, ISS133
D872	23316675	Diode, Zener, MTZJ6.2B
D873	23316315	Diode, Zener, UZ6.8BSB
D874	23118859	Diode, ISS133
D875	23316760	Diode, Zener, MTZJ36D
D876	23118859	Diode, ISS133
D877	23118859	Diode, ISS133
D883	23316406	Diode, FML-G16S
D885	23316184	Diode, FML-G12S
D891	23316184	Diode, FML-G12S
D896	23316825	Diode, EU2YX
D899	24000658	Varistor, 470V
D901	23118859	Diode, ISS133
D902	23118859	Diode, ISS133
D903	23118859	Diode, ISS133
D904	23118859	Diode, ISS133
D905	23118859	Diode, ISS133
D906	23118859	Diode, ISS133
D911	23118859	Diode, ISS133
D912	23118859	Diode, ISS133
D913	23118859	Diode, ISS133
D914	23118859	Diode, ISS133
D915	23118859	Diode, ISS133
D921	23118859	Diode, ISS133
D922	23118859	Diode, ISS133

Location No.	Part No.	Description
D923	23118859	Diode, ISS133
D924	23118859	Diode, ISS133
D925	23118859	Diode, ISS133
D926	23118859	Diode, ISS133
D927	23118859	Diode, ISS133
D946	23118859	Diode, ISS133
D946	23118859	Diode, ISS133
D961	23118859	Diode, ISS133
D962	23118859	Diode, ISS133
D964	23118859	Diode, ISS133
D7701	23118859	Diode, ISS133
D7702	23155532	Diode, ERB12-01
D7705	23118859	Diode, ISS133
D7706	23118859	Diode, ISS133
D7707	23118859	Diode, ISS133
D7708	23118859	Diode, ISS133
D7709	23316675	Diode, Zener, MTZJ6.2B
D7710	23316716	Diode, Zener, MTZJ11B
D7711	23316716	Diode, Zener, MTZJ11B
D7712	23118859	Diode, ISS133
D7713	23118859	Diode, ISS133
D7717	23316675	Diode, Zener, MTZJ6.2B
D7718	23316675	Diode, Zener, MTZJ6.2B
D7719	23316675	Diode, Zener, MTZJ6.2B
D7720	23316675	Diode, Zener, MTZJ6.2B
D7721	23316675	Diode, Zener, MTZJ6.2B
D7722	23316675	Diode, Zener, MTZJ6.2B
D7801	23118859	Diode, ISS133
D7802	23118859	Diode, ISS133
D7803	23118859	Diode, ISS133
D7804	23118859	Diode, ISS133
D7805	23118859	Diode, ISS133
D442	23316675	Diode, Zener, MTZJ6.2B
DA69	23316675	Diode, Zener, MTZJ6.2B
DB01	23358493	LED, SPR54MVWFLMN
DB03	23358522	LED, SIR-565B3F
DD80	23118859	Diode, ISS133
DR01	23316817	Diode, ISS120-7
DR31	23118859	Diode, ISS133
DV01	23316866	Diode, Zener, MTZJ9.1A
DV02	23316686	Diode, Zener, MTZJ9.1A
DV03	23316866	Diode, Zener, MTZJ9.1A
DV04	23316866	Diode, Zener, MTZJ9.1A
DV05	23316686	Diode, Zener, MTZJ9.1A
DV06	23118859	Diode, ISS133
DW04	23118859	Diode, ISS133
DW05	23118859	Diode, ISS133
DW06	A7568475	Diode, TVR-2D
DW07	A7568475	Diode, TVR-2D
DW20	23118869	Diode, ISS133
DW21	23118859	Diode, ISS133
DY601	23118859	Diode, ISS133
DY602	23118859	Diode, ISS133
DZ01	23118622	Diode, Zener, RD10ESA82

#### MISCELLANEOUS

B202	23470270	Holder, Back Terminal
△F470	23144873	Fuse, 1.0A
F470A	23165431	Holder, Fuse
F470B	23165431	Holder, Fuse
△F801	23144558	Fuse, 5.0A
F801A	23165433	Holder, Fuse
△F802	23144870	Fuse, 2.0A, 250V
F802A	23165431	Holder, Fuse

Location No.	Part No.	Description
F802B	23165431	Holder, Fuse
△F803	23144870	Fuse, 2.0A, 250V
F803A	23165431	Holder, Fuse
F803B	23165431	Holder, Fuse
△F804	23144870	Fuse, 2.0A, 250V
F804A	23165431	Holder, Fuse
F804B	23165431	Holder, Fuse
△F805	23144867	Fuse, 4.0A
F805A	23165431	Holder, Fuse
F805B	23165431	Holder, Fuse
H002	23148282	Module, MVCS45, Multi IF MPX APRO
H003	23123919	Divider, Antenna, DAE123B
JP202	23238714	Coil, Peaking, TRF4100AJ
KB01	23904948	Remote Sensor, RPM-678CBR-S
P661	23365444	Jack, Earphone
△P801	23372053	Power Cord (AV-48PRO)
△P801	23372055	Power Cord (AV-48PROX)
△S801	23145434	Switch, Power, 2C2P
SA01	23145226	Switch, Push, 1C1P
SA02	23145226	Switch, Push, 1C1P
SA03	23145226	Switch, Push, 1C1P
SA04	23145226	Switch, Push, 1C1P
SA06	23145226	Switch, Push, 1C1P
SA07	23145226	Switch, Push, 1C1P
△SR80	23145564	Relay, DC12V
△SR81	23145564	Relay, DC12V
△V901A	23902886	Socket, CRT, 9P
△V902A	23902886	Socket, CRT, 9P
△V903A	23902886	Socket, CRT, 9P
W661	23151232	Speaker, SPK-1235, 160x160mm, 8 ohm
W662	23151232	Speaker, SPK-1235, 160x160mm, 8 ohm
X401	23153721	Ceramic Resonator, 503kHz, TCR1023
X501	23153961	Crystal, 3.58MHz
X503	23153979	Crystal, 4.43MHz
XA01	23153325	Ceramic Resonator, 8.00M, TCR1056
XQ01	23153989	Crystal, 4MHz
XT01	23153472	Crystal, 27M
△Z410	23110841	Focus Pack, TPA6030
Z410A	23368809	Focus Cable
△Z460	24082877	Cap Block, TPA5007
Z702	23103800	Filter, TEM2026D
Z703	23103800	Filter, TEM2026D
Z704	23103800	Filter, TEM2026D
Z705	23103800	Filter, TEM2026D
Z706	23103800	Filter, TEM2026D
Z707	23103800	Filter, TEM2026D
Z711	23103800	Filter, TEM2026D
Z712	23103800	Filter, TEM2026D
Z801	23904998	IC, HIC1016
Z889	23144543	Protector, PRF50005491, 125V, 5A
Z890	23144543	Protector, PRF50005491, 125V, 5A
ZP405	23144538	Protector, 125V, 1.6A
ZV01	23107519	Ceramic Video Trap, 4.43MHz, TCF1066
ZY01	23148264	Module, Multi PIP

Location No.	Part No.	Description
<b>PICTURE TUBE</b>		
△ V901R	23795718	Projection Tube Ass'y (R)
E935	23710134	Screw, PP4x0.7x6 SBZ
△ V902G	23795719	Projection Tube Ass'y (G)
E943	23710134	Screw, PP4x0.7x6 SBZ
△ V903B	23795720	Projection Tube Ass'y (B)
E956	23710134	Screw, PP4x0.7x6 SBZ
<b>TUNER</b>		
H001	23321259	Tuner,ECA12LX2
HY01	23321292	Tuner,EC922L2
<b>PACKING</b>		
△ Y101A	23563233	INST BOOK
A122	23845485	Safety Band
K902	23306252	Remote Hand Unit (AV-48PRO)RM-C266-1
K902	23306249	Remote Hand Unit (AV-48PRO) RM-C265-1

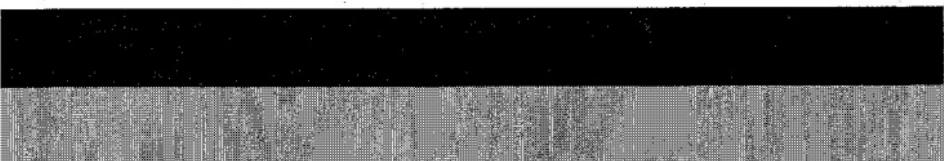
(No.51281) 1-19

V-48PRO  
V-48PROX

# SPECIFICATIONS

<b>Input Power Rating:</b>	210 W, AC 110 ~ 245 V, 50/60 Hz																																																						
<b>Aerial Input Impedance:</b>	75 ohm unbalanced type for VHF, UHF and CATV																																																						
<b>Television System and Channels:</b>	<table><thead><tr><th>System</th><th>Channel</th><th>VHF</th><th>UHF</th><th>CATV</th></tr></thead><tbody><tr><td>PAL B/G</td><td>C.C.I.R</td><td>2 ~ 12</td><td>21 ~ 69</td><td>X ~ Z + 2, S1 ~ S41</td></tr><tr><td>PAL I</td><td>UK</td><td>-</td><td>21 ~ 69</td><td>-</td></tr><tr><td>PAL D/K</td><td>CHINA</td><td>1 ~ 12</td><td>13 ~ 57</td><td>Z-1 ~ Z-35</td></tr><tr><td>SECAM B/G</td><td>C.C.I.R</td><td>2 ~ 12</td><td>21 ~ 69</td><td>X ~ Z + 2, S1 ~ S41</td></tr><tr><td>SECAM D/K</td><td>D.I.R.T.</td><td>1 ~ 12</td><td>21 ~ 69</td><td>-</td></tr><tr><td>NTSC M US</td><td>US</td><td>2 ~ 13</td><td>14 ~ 79</td><td>A-6 ~ A-1, A ~ W, AA ~ BBB</td></tr><tr><td>NTSC M JAPAN</td><td>JAPAN</td><td>1 ~ 12</td><td>13 ~ 62</td><td>M1 ~ M10, S1 ~ S16</td></tr><tr><td>Special RF Signal:</td><td>4.43NTSC</td><td></td><td></td><td>Sound system 5.5/6.0/6.5MHz</td></tr><tr><td>Special RF Signal:</td><td>PAL 60Hz</td><td></td><td></td><td>Sound system 5.5/6.0/6.5MHz</td></tr></tbody></table>					System	Channel	VHF	UHF	CATV	PAL B/G	C.C.I.R	2 ~ 12	21 ~ 69	X ~ Z + 2, S1 ~ S41	PAL I	UK	-	21 ~ 69	-	PAL D/K	CHINA	1 ~ 12	13 ~ 57	Z-1 ~ Z-35	SECAM B/G	C.C.I.R	2 ~ 12	21 ~ 69	X ~ Z + 2, S1 ~ S41	SECAM D/K	D.I.R.T.	1 ~ 12	21 ~ 69	-	NTSC M US	US	2 ~ 13	14 ~ 79	A-6 ~ A-1, A ~ W, AA ~ BBB	NTSC M JAPAN	JAPAN	1 ~ 12	13 ~ 62	M1 ~ M10, S1 ~ S16	Special RF Signal:	4.43NTSC			Sound system 5.5/6.0/6.5MHz	Special RF Signal:	PAL 60Hz			Sound system 5.5/6.0/6.5MHz
System	Channel	VHF	UHF	CATV																																																			
PAL B/G	C.C.I.R	2 ~ 12	21 ~ 69	X ~ Z + 2, S1 ~ S41																																																			
PAL I	UK	-	21 ~ 69	-																																																			
PAL D/K	CHINA	1 ~ 12	13 ~ 57	Z-1 ~ Z-35																																																			
SECAM B/G	C.C.I.R	2 ~ 12	21 ~ 69	X ~ Z + 2, S1 ~ S41																																																			
SECAM D/K	D.I.R.T.	1 ~ 12	21 ~ 69	-																																																			
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NTSC M JAPAN	JAPAN	1 ~ 12	13 ~ 62	M1 ~ M10, S1 ~ S16																																																			
Special RF Signal:	4.43NTSC			Sound system 5.5/6.0/6.5MHz																																																			
Special RF Signal:	PAL 60Hz			Sound system 5.5/6.0/6.5MHz																																																			
<b>Intermediate Frequencies:</b>	Picture I-F carrier frequency				38.0 MHz																																																		
	Sound I-F carrier frequency				33.5 MHz (4.5 MHz M) 32.5 MHz (5.5 MHz B/G) 32.0 MHz (6.0 MHz I) 31.5 MHz (6.5 MHz D/K)																																																		
<b>Colour System:</b>	PAL / SECAM / 4.43 NTSC / 3.58 NTSC																																																						
<b>Screen Size:</b>	Type 48																																																						
<b>Sound Output:</b>	14W + 14W																																																						
<b>Speakers:</b>	160 mm x 160 mm, 2 pcs																																																						
<b>Aux. Terminals:</b>	Headphone Jack, S-VIDEO socket, VIDEO/AUDIO input socket, MONITOR output socket																																																						
<b>Dimensions:</b>	Height .....				1254 mm																																																		
	Width .....				1046 mm																																																		
	Depth .....				499 mm																																																		
<b>Mass:</b>	85 kg																																																						
<b>Features:</b>	Projection TV, Picture in Picture, NICAM and German stereo, ON/OFF-timer, No signal off, Blue back screen, TV Games, MULTI Language OSD, TELETEXT (AV-48PRO only)																																																						

Specifications are subject to change without notice.



**JVC**

VICTOR COMPANY OF JAPAN, LIMITED  
TELEVISION RECEIVER DIVISION 1106 Heta, Iwai-city, Ibaraki-prefecture, 306-06, Japan

Printed in Japan  
VP 9711  
MS/MH

Location No.	Part No.	Description
C837	24567334	PF, 0.33 $\mu$ F
C838	24763221	EL, 220 $\mu$ F, ±20%, 16V
C840	24214471	CD, 470pF, ±10%, 500V
C841	24676220	EL, 22 $\mu$ F, ±20%, 100V
C842	24567474	PF, 0.47 $\mu$ F
C843	24567474	PF, 0.47 $\mu$ F
C844	24567334	PF, 0.33 $\mu$ F
C845	24665471	EL, 470 $\mu$ F, ±20%, 10V
C846	24567104	PF, 0.1 $\mu$ F
C847	24669470	EL, 47 $\mu$ F, ±20%, 50V
C850	24092281	CD, 4700pF, ±20%, AC250V
C851	24092281	CD, 4700pF, ±20%, AC250V
C852	24092281	CD, 4700pF, ±20%, AC250V
C853	24092281	CD, 4700pF, ±20%, AC250V
C854	24086936	EL, 270 $\mu$ F, ±20%, 480V
C855	24092341	CD, 470pF, ±10%, 2kV
C856	24095913	PF, 1600pF, ±3%, 1600V
C857	24617819	EL, 47 $\mu$ F, ±20%, 50V
C858	24214471	CD, 470pF, ±10%, 500V
C859	24214471	CD, 470pF, ±10%, 500V
C860	24676470	EL, 47 $\mu$ F, ±20%, 100V
C861	24676220	EL, 22 $\mu$ F, ±20%, 100V
C862	24590152	PF, 1500pF
△C863	24092565	CD, 470pF, ±10%, AC250V
△C864	24092565	CD, 470pF, ±10%, AC250V
C865	24214331	CD, 330pF, ±10%, 500V
C866	24214331	CD, 330pF, ±10%, 500V
C867	24214471	CD, 470pF, ±10%, 500V
C868	24214471	CD, 470pF, ±10%, 500V
C869	24669470	EL, 47 $\mu$ F, ±20%, 50V
C870	24795332	EL, 3300pF, 25V
C871	24795332	EL, 3300pF, 25V
C872	24214471	CD, 470pF, ±10%, 500V
C873	24797222	EL, 2200 $\mu$ F, ±20%, 50V
C874	24214471	CD, 470pF, ±10%, 500V
C875	24567563	PF, 0.056 $\mu$ F
C876	24797100	EL, 10 $\mu$ F, ±20%, 50V
C877	24787100	EL, 10 $\mu$ F, ±20%, 50V
C878	24567104	PF, 0.1 $\mu$ F
C879	24797100	EL, 10 $\mu$ F, ±20%, 50V
C880	24677220	EL, 22 $\mu$ F, ±20%, 160V
C884	24086049	EL, 330 $\mu$ F, ±20%, 160V
C885	24214471	CD, 470pF, ±10%, 500V
C887	24214471	CD, 470pF, ±10%, 500V
C889	24797222	EL, 2200 $\mu$ F, ±20%, 50V
C890	24666101	EL, 100 $\mu$ F, ±20%, 16V
C891	24666101	EL, 100 $\mu$ F, ±20%, 16V
C892	24795472	EL, 4700pF, ±20%, 25V
C893	24092338	CD, 270pF, ±10%, 2kV
C894	24669229	EL, 2.2 $\mu$ F, ±20%, 50V
C895	24676470	EL, 47 $\mu$ F, ±20%, 100V
C897	24795472	EL, 4700 $\mu$ F, ±20%, 25V
C898	24567474	PF, 0.47 $\mu$ F
C899	24214471	CD, 470pF, ±10%, 500V
C901	24211102	CD, 1000pF, ±10%, 2kV
C902	24794101	EL, 100 $\mu$ F, ±20%, 16V
C903	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C904	24436471	CD, 470pF
C905	24214102	CD, 1000pF, ±10%, 500V
C911	24211102	CD, 1000pF, ±10%, 2kV
C912	24794101	EL, 100 $\mu$ F, ±20%, 16V
C913	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C914	24436471	CD, 470pF
C915	24679330	EL, 33 $\mu$ F, ±20%, 250V

Location No.	Part No.	Description
C916	24794102	EL, 1000 $\mu$ F, ±20%, 16V
C921	24211102	CD, 1000pF, ±10%, 2kV
C922	24794101	EL, 100 $\mu$ F, ±20%, 16V
C923	24436471	CD, 470pF
C924	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C941	24797478	EL, 0.47 $\mu$ F, ±20%, 50V
C943	24794471	EL, 470 $\mu$ F, ±20%, 16V
C944	24203100	EL, 10 $\mu$ F, ±20%, 16V
C961	24794101	EL, 100 $\mu$ F, ±20%, 16V
C962	24203100	EL, 10 $\mu$ F, ±20%, 16V
C963	24591104	PF, 0.1 $\mu$ F
C964	24591104	PF, 0.1 $\mu$ F
C7701	24761221	EL, 220 $\mu$ F, ±20%, 6.3V
C7721	24212102	CD, 1000pF, ±10%
C7722	24436101	CD, 100pF
C7724	24795101	EL, 100 $\mu$ F, ±20%, 25V
C7725	24795101	EL, 100 $\mu$ F, ±20%, 25V
C7726	24212102	CD, 1000pF, ±10%
C7727	24436101	CD, 100pF
C7729	24212102	CD, 1000pF, ±10%
C7730	24436101	CD, 100pF
C7732	24212102	CD, 1000pF, ±10%
C7733	24436101	CD, 100pF
C7735	24795101	EL, 100 $\mu$ F, ±20%, 25V
C7736	24797101	EL, 100 $\mu$ F, ±20%, 50V
C7737	24212102	CD, 1000pF, ±10%
C7738	24436101	CD, 100pF
C7740	24212102	CD, 1000pF, ±10%
C7741	24436101	CD, 100pF
C7747	24794101	EL, 100 $\mu$ F, ±20%, 16V
C7748	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C7749	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C7750	24764101	EL, 100 $\mu$ F, ±20%, 25V
C7751	24794101	EL, 100 $\mu$ F, ±20%, 16V
C7752	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C7753	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C7754	24764101	EL, 100 $\mu$ F, ±20%, 25V
C7756	24794101	EL, 100 $\mu$ F, ±20%, 16V
C7757	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C7758	24764101	EL, 100 $\mu$ F, ±20%, 25V
C7760	24795470	EL, 47 $\mu$ F, ±20%, 25V
C7761	24669100	EL, 10 $\mu$ F, ±20%, 50V
C7762	24669100	EL, 10 $\mu$ F, ±20%, 50V
C7763	24795470	EL, 47 $\mu$ F, ±20%, 25V
C7764	24436331	CD, 330pF
C7765	24797479	EL, 4.7 $\mu$ F, ±20%, 50V
C7766	24797479	EL, 4.7 $\mu$ F, ±20%, 50V
C7767	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C7768	24567104	PF, 0.1 $\mu$ F
C7769	24232103	CD, 0.01 $\mu$ F, +80%, -20%
C7770	24797470	EL, 47 $\mu$ F, ±20%, 50V
C7771	24567103	PF, 0.01 $\mu$ F
C7773	24766471	EL, 470 $\mu$ F, ±20%, 50V
C7774	24436331	CD, 330pF
C7776	24669339	EL, 3.3 $\mu$ F, ±20%, 50V
CA13	24212101	CD, 100pF, ±10%
CA22	24212101	CD, 100pF, ±10%
CA23	24212101	CD, 100pF, ±10%
CA24	24212101	CD, 100pF, ±10%
CA25	24474101	CD, 100pF, ±10%
CA33	24232103	CD, 0.01 $\mu$ F, +80%, -20%
CA36	24212101	CD, 100pF, ±10%
CA37	24212101	CD, 100pF, ±10%

Location No.	Part No.	Description	Location No.	Part No.	Description
CA38	24212101	CD, 100 $\mu$ F, ±10%	CQ31	24797478	EL, 0.47 $\mu$ F, ±20%, 50V
CA42	24794100	EL, 10 $\mu$ F, ±20%, 16V	CQ32	24590103	PF, 0.01 $\mu$ F
CA43	24232103	CD, 0.01 $\mu$ F, +80%, -20%	CQ33	24567104	PF, 0.1 $\mu$ F
CA44	24232103	CD, 0.01 $\mu$ F, +80%, -20%	CQ34	24567104	PF, 0.1 $\mu$ F
CA68	24794100	EL, 10 $\mu$ F, ±20%, 16V	CQ35	24206478	EL, 0.47 $\mu$ F, 50V
CA69	24232103	CD, 0.01 $\mu$ F, +80%, -20%	CQ36	24206478	EL, 0.47 $\mu$ F, 50V
CB01	24794470	EL, 47 $\mu$ F, ±20%, 16V	CQ37	24797010	EL, 1 $\mu$ F, ±20%, 50V
CB40	24212101	CD, 100 $\mu$ F, ±10%	CQ38	24797010	EL, 1 $\mu$ F, ±20%, 50V
CB41	24212101	CD, 100 $\mu$ F, ±10%	CQ39	24797010	EL, 1 $\mu$ F, ±20%, 50V
CB61	24797010	EL, 1 $\mu$ F, ±20%, 50V	CO40	24426820	CD, 82pF
CE62	24591682	PF, 0.068 $\mu$ F	CQ40A	24436090	CD, 9pF, ±0.25pF
CB63	24591333	PF, 0.033 $\mu$ F	CR01	24567104	PF, 0.1 $\mu$ F
CD80	24203100	EL, 10 $\mu$ F, ±20%, 16V	CR02	24567104	PF, 0.1 $\mu$ F
CG01	24591224	PF, 0.22 $\mu$ F	CR03	24567104	PF, 0.1 $\mu$ F
CG02	24591104	PF, 0.1 $\mu$ F	CR05	24232103	CD, 0.01 $\mu$ F, +80%, -20%
CG03	24591104	PF, 0.1 $\mu$ F	CR06	24666103	EL, 10 $\mu$ F, ±20%, 16V
CG04	24206010	EL, 1 $\mu$ F, 50V	CR12	24206108	EL, 0.1 $\mu$ F, 50V (U091)
CG05	24797220	EL, 22 $\mu$ F, ±20%, 50V	CR12	24666103	EL, 0.1 $\mu$ F, ±20%, 16V (UM01)
CG07	24206010	EL, 1 $\mu$ F, 50V	CR13	24206108	EL, 0.1 $\mu$ F, 50V
CG08	24206010	EL, 1 $\mu$ F, 50V	CR14	24206108	EL, 0.1 $\mu$ F, 50V
CG09	24206010	EL, 1 $\mu$ F, 50V	CR15	24617024	EL, 470 $\mu$ F, ±20%, 16V
CG12	24591273	PF, 0.027 $\mu$ F	CS01	24206010	EL, 1 $\mu$ F, 50V
CG13	24232103	CD, 0.01 $\mu$ F, +80%, -20%	CS02	24206010	EL, 1 $\mu$ F, 50V
CG14	24203101	EL, 100 $\mu$ F, ±20%, 16V	CS03	24085988	EL, 1 $\mu$ F, ±20%, 50V, NP
CG15	24591822	PF, 8200pF	CS05	24206010	EL, 1 $\mu$ F, 50V
CG16	24206010	EL, 1 $\mu$ F, 50V	CS06	24206010	EL, 1 $\mu$ F, 50V
CG17	24591273	PF, 0.027 $\mu$ F	CS07	24206010	EL, 1 $\mu$ F, 50V
CG18	24591822	PF, 8200pF	CS08	24206010	EL, 1 $\mu$ F, 50V
CG20	24203100	EL, 10 $\mu$ F, ±20%, 16V	CS09	24206010	EL, 1 $\mu$ F, 50V
CG24	24474102	CD, 1000pF, ±10%	CS10	24206010	EL, 1 $\mu$ F, 50V
CG25	24206229	EL, 2.2 $\mu$ F, 50V	CS11	24232103	CD, 0.01 $\mu$ F, +80%, -20%
CG26	24206229	EL, 2.2 $\mu$ F, 50V	CS21	24212152	CD, 1500pF, ±10%
CG30	24203100	EL, 10 $\mu$ F, ±20%, 16V	CS22	24212152	CD, 1500pF, ±10%
CQ01	24212102	CD, 1000pF, ±10%	CS23	24206478	EL, 0.47 $\mu$ F, 50V
CQ02	24353820	CD, 82pF	CS32	24203100	EL, 10 $\mu$ F, ±20%, 16V
CQ03	24212102	CD, 1000pF, ±10%	CS33	24763101	EL, 100 $\mu$ F, ±20%, 16V
CQ04	24794100	EL, 10 $\mu$ F, ±20%, 16V	CS601	24794100	EL, 10 $\mu$ F, ±20%, 16V
CQ05	24590563	PF, 0.056 $\mu$ F	CS602	24794100	EL, 10 $\mu$ F, ±20%, 16V
CQ07	24590203	PF, 0.02 $\mu$ F	CS605	24797478	EL, 0.47 $\mu$ F, ±20%, 50V
CQ08	24590683	PF, 0.068 $\mu$ F	CT01	24590104	PF, 0.1 $\mu$ F
CQ09	24797229	EL, 2.2 $\mu$ F, ±20%, 50V	CT02	24353100	CD, 10pF, ±0.25pF
CQ10	24590223	PF, 0.022 $\mu$ F	CT03	24353150	CD, 15pF
CQ11	24797229	EL, 2.2 $\mu$ F, ±20%, 50V	CT04	24212102	CD, 1000pF, ±10%
CQ12	24436820	CD, 82pF	CT05	24590104	PF, 0.1 $\mu$ F
CQ12A	24436090	CD, 9pF, ±0.25pF	CT06	24590104	PF, 0.1 $\mu$ F
CQ13	24797010	EL, 1 $\mu$ F, ±20%, 50V	CT07	24085944	EL, 2.2 $\mu$ F, ±20%, 50V, NP
CQ14	24797010	EL, 1 $\mu$ F, ±20%, 50V	CT08	24232103	CD, 0.01 $\mu$ F, +80%, -20%
CQ15	24794101	EL, 100 $\mu$ F, ±20%, 16V	CT09	24794101	EL, 100 $\mu$ F, ±20%, 16V
CQ16	24232103	CD, 0.01 $\mu$ F, +80%, -20%	CT10	24436220	CD, 22pF
CQ17	24353150	CD, 15pF	CT11	24794101	EL, 100 $\mu$ F, ±20%, 16V
CQ18	24436820	CD, 82pF	CT12	24590104	PF, 0.1 $\mu$ F
CQ18A	24436090	CD, 9pF, ±0.25pF	CT13	24794100	EL, 10 $\mu$ F, ±20%, 16V
CQ19	24590103	PF, 0.01 $\mu$ F	CT14	24794100	EL, 10 $\mu$ F, ±20%, 16V
CQ20	24567104	PF, 0.1 $\mu$ F	CT15	24436101	CD, 100pF
CQ21	24794470	EL, 47 $\mu$ F, ±20%, 16V	CT16	24436220	CD, 22pF
CQ22	24232103	CD, 0.01 $\mu$ F, +80%, -20%	CT17	24232103	CD, 0.01 $\mu$ F, +80%, -20%
CQ23	24567104	PF, 0.1 $\mu$ F	CV01	24232103	CD, 0.01 $\mu$ F, +80%, -20%
CQ24	24567104	PF, 0.1 $\mu$ F	CV02	24203100	EL, 10 $\mu$ F, ±20%, 16V
CQ25	24797010	EL, 10 $\mu$ F, ±20%, 50V	CV03	24203100	EL, 10 $\mu$ F, ±20%, 16V
CQ26	24567104	PF, 0.1 $\mu$ F	CV04	24203100	EL, 10 $\mu$ F, ±20%, 16V
CQ27	24567104	PF, 0.1 $\mu$ F	CV05	24232103	CD, 0.01 $\mu$ F, +80%, -20%
CQ28	24797478	EL, 0.47 $\mu$ F, ±20%, 50V	CV06	24203100	EL, 10 $\mu$ F, ±20%, 16V
CQ29	24794101	EL, 100 $\mu$ F, ±20%, 16V	CV07	24763471	EL, 470 $\mu$ F, ±20%, 16V
CQ30	24232103	CD, 0.01 $\mu$ F, +80%, -20%	CV08	24763471	EL, 470 $\mu$ F, ±20%, 16V

Location No.	Part No.	Description
CV09	24203100	EL, 10 $\mu$ F, ±20%, 16V
CV10	24203100	EL, 10 $\mu$ F, ±20%, 16V
CV12	24232103	CD, 0.01 $\mu$ F, +80%, -20%
CV13	24232103	CD, 0.01 $\mu$ F, +80%, -20%
CV27	24763471	EL, 470 $\mu$ F, ±20%, 16V
CV29	24763101	EL, 100 $\mu$ F, ±20%, 16V
CV30	24232103	CD, 0.01 $\mu$ F, +80%, -20%
CV31	24474102	CD, 1000 $\mu$ F, ±10%
CV40	24763101	EL, 100 $\mu$ F, ±20%, 16V
CV41	24232103	CD, 0.01 $\mu$ F, +80%, -20%
CV42	24085929	EL, 33 $\mu$ F, ±20%, 16V, NP
CV43	24436820	CD, 82 $\mu$ F
CV43A	24436090	CD, 9pF, ±0.25%
CV44	24436101	CD, 100pF
CV46	24763101	EL, 100 $\mu$ F, ±20%, 16V (UV01)
CV46	24232103	CD, 0.01 $\mu$ F, +80%, -20%, (M037Z)
CV47	24232103	CD, 0.01 $\mu$ F, +80%, -20%
CV48	24203330	EL, 33 $\mu$ F, ±20%, 16V (UV01)
CV48	24476103	CD, 0.01 $\mu$ F, ±30%, 16V (M037Z)
CV53	24474102	CD, 1000 $\mu$ F, ±10%
CV54	24474820	CD, 82 $\mu$ F, ±10%
CW04	24581822	PF, 8200pF
CW05	24212103	CD, 0.01 $\mu$ F, ±10%
CW07	24666470	EL, 47 $\mu$ F, ±20%, 16V
CW12	24666470	EL, 47 $\mu$ F, ±20%, 16V
CW13	24790100	EL, 10 $\mu$ F, ±20%, 160V
CW14	24436101	CD, 100pF
CW15	24214472	CD, 4700pF, ±10%, 500V
CW16	24436101	CD, 100pF
CW17	24214472	CD, 4700pF, ±10%, 500V
CW18	24790470	EL, 47 $\mu$ F, ±20%, 160V
CW19	24435560	CD, 56pF, 500V
CW20	24790100	EL, 10 $\mu$ F, ±20%, 160V
CW21	24790470	EL, 47 $\mu$ F, ±20%, 160V
CW22	24438581	CD, 560pF
CW26	24212102	CD, 1000pF, ±10%
CY01	24763221	EL, 220 $\mu$ F, ±20%, 16V
CY601	24794101	EL, 100 $\mu$ F, ±20%, 16V
CY602	24797479	EL, 4.7 $\mu$ F, ±20%, 50V
CY603	24797479	EL, 4.7 $\mu$ F, ±20%, 50V
CY604	24794100	EL, 10 $\mu$ F, ±20%, 16V
CY605	24794100	EL, 10 $\mu$ F, ±20%, 16V
CY606	24794100	EL, 10 $\mu$ F, ±20%, 16V
CY607	24797229	EL, 2.2 $\mu$ F, ±20%, 50V
CY608	24794101	EL, 100 $\mu$ F, ±20%, 16V
CY609	24797229	EL, 2.2 $\mu$ F, ±20%, 50V
CZ07	24206229	EL, 2.2 $\mu$ F, 50V
CZ08	24203100	EL, 10 $\mu$ F, ±20%, 16V
CZ09	24436220	CD, 22pF
CZ10	24473180	CD, 18pF
CZ11	24473100	CD, 10pF
CZ12	24232103	CD, 0.01 $\mu$ F, +80%, -20%
CZ13	24092398	CD, 0.1 $\mu$ F, +80%, -20%
CZ14	24617816	EL, 10 $\mu$ F, ±20%, 50V
CZ15	24232103	CD, 0.01 $\mu$ F, +80%, -20%
CZ16	24206478	EL, 0.47 $\mu$ F, 50V
CZ17	24232103	CD, 0.01 $\mu$ F, +80%, -20%
CZ19	24436181	CD, 180pF
CZ20	24567103	PF, 0.01 $\mu$ F
CZ21	24436390	CD, 39pF
CZ22	24617816	EL, 10 $\mu$ F, ±20%, 50V
CZ23	24092398	CD, 0.1 $\mu$ F, +80%, -20%
CZ24	24092398	CD, 0.1 $\mu$ F, +80%, -20%
CZ25	24203101	EL, 100 $\mu$ F, ±20%, 16V

Location No.	Part No.	Description
CZ26	24232103	CD, 0.01 $\mu$ F, +80%, -20%
CZ28	24232103	CD, 0.01 $\mu$ F, +80%, -20%
CZ29	24092398	CD, 0.1 $\mu$ F, +80%, -20%
CZ30	24617816	EL, 10 $\mu$ F, ±20%, 50V
CZ32	24436120	CD, 12pF
CZ33	24436120	CD, 12pF
CZ34	24473120	CD, 12pF
CZ35	24473120	CD, 12pF
CZ36	24232103	CD, 0.01 $\mu$ F, +80%, -20%
CZ37	24092398	CD, 0.1 $\mu$ F, +80%, -20%
CZ38	24092398	CD, 0.1 $\mu$ F, +80%, -20%
CZ43	24232103	CD, 0.01 $\mu$ F, +80%, -20%
CZ45	24436180	CD, 18pF
<b>RESISTORS</b>		
R101	24382153	OMF, 15k ohm, 1W
R201	24366821	CF, 820 ohm
R202	24366102	CF, 1k ohm
R204	24366104	CF, 100k ohm
R205	24366101	CF, 100 ohm
R206	24366102	CF, 1k ohm
R207	24366101	CF, 100 ohm
R208	24366101	CF, 100 ohm
R209	24366101	CF, 100 ohm
R212	24366472	CF, 4700 ohm
R213	24366122	CF, 1200 ohm
R214	24366222	CF, 2200 ohm
R215	24366272	CF, 2700 ohm
R216	24366103	CF, 10k ohm
R217	24366102	CF, 1k ohm
R218	24367103	CF, 10k ohm, ±2%
R220	24366272	CF, 2700 ohm
R221	24366102	CF, 1k ohm
R223	24366102	CF, 1k ohm
R227	24367912	CF, 9100 ohm, ±2%
R230	24366562	CF, 5600 ohm
R301	24366102	CF, 1k ohm
R303	24321129	MF, 1.2 ohm, 1/2W
R304	24367223	CF, 22k ohm, ±2%
R305	24322282	OMF, 0.82 ohm, 1W
R306	24367563	CF, 56k ohm, ±2%
R307	24367224	CF, 220k ohm
R308	24382391	OMF, 390 ohm, 1W
R311	24366392	CF, 3900 ohm
R312	24366153	CF, 15k ohm
R313	24366104	CF, 100k ohm (M038Z)
R313	24367153	CF, 15k ohm ±20% (J401)
R314	24366105	CF, 1M ohm
R315	24366824	CF, 820k ohm
R316	24366154	CF, 150k ohm
R318	24366471	CF, 470 ohm
R319	24366471	CF, 470 ohm
R320	24366101	CF, 100 ohm
R327	24000187	FR, 3.3 ohm, 1W
R328	24366104	CF, 100k ohm
R329	24366203	CF, 20k ohm
R329	24366203	CF, 20k ohm
R330	24366102	CF, 1k ohm
R334	24366102	CF, 1k ohm
R336	24383271	OMF, 270 ohm, 2W
R341	24366682	CF, 6800 ohm
R343	24366153	CF, 15k ohm
R346	24366102	CF, 1k ohm
R347	24366184	CF, 180k ohm

Location No.	Part No.	Description
R350	24366331	CF, 330 ohm
R351	24366823	CF, 82k ohm
R352	24366104	CF, 100k ohm
R353	24366470	CF, 47 ohm
R354	24366562	CF, 5600 ohm
R370	24321159	MF, 1.5 ohm, 1/2W
R371	24366562	CF, 5600 ohm
R372	24366392	CF, 3900 ohm
R373	24366182	CF, 1800 ohm
R374	24366473	CF, 47k ohm
R375	24366102	CF, 1k ohm
R389	24366222	CF, 2200 ohm
R390	24366682	CF, 6800 ohm
R391	24366163	CF, 16k ohm
R392	24366822	CF, 8200 ohm
R401	24366391	CF, 39k ohm
R402	24366103	CF, 10k ohm
R403	24366302	CF, 3k ohm
R404	24382682	OMF, 6800 ohm, 1W
R405	24382682	OMF, 6800 ohm, 1W
R406	24382682	OMF, 6800 ohm, 1W
R407	24366103	CF, 10k ohm
R409	24321209	MF, 2 ohm, 1/2W
R410	24366331	CF, 330 ohm
R411	24366471	CF, 47k ohm
R413	24366274	CF, 270k ohm
R415	24553272	OMF, 2700 ohm, 1W
R416	24510622	Cement, 6200 ohm, 5W
R417	24366471	CF, 470 ohm
R425	24552331	OMF, 330 ohm, 1/2W
R426	24366821	CF, 820 ohm
R427	24366392	CF, 3900 ohm
R428	24366561	CF, 560 ohm
R429	24552560	OMF, 56 ohm, 1/2W
R431	24382100	OMF, 10 ohm, 1W
R432	24532560	FR, 56 ohm, 1W
R434	24366102	CF, 1k ohm
R435	24366333	CF, 33k ohm
R436	24327224	MF, 220k ohm, ±1%, 1/4W
R438	24381102	OMF, 1k ohm, 1/2W
R439	24366472	CF, 4700 ohm
R441	24532102	FR, 1k ohm, 1W
R442	24382513	OMF, 51k ohm, 1W
R443	24310109	MF, 1.0 ohm, 1/2W
R444	24338398	MF, 0.39 ohm, 1W
R447	24382473	OMF, 47k ohm, 1W
R448	24338828	MF, 0.82 ohm, 1W
R450	24066879	VR, 1k ohm, 0.3W
R451	24367223	CF, 22k ohm, ±2%

Location No.	Part No.	Description
R452	24367223	CF, 22k ohm, ±2%
R453	24367223	CF, 22k ohm, ±2%
R454	24366223	CF, 22k ohm
R455	24387333	CF, 33k ohm, ±2%
R458	24366823	CF, 82k ohm
R459	24367273	CF, 27k ohm, ±2%
R460	24552332	OMF, 3300 ohm, 1/2W
R461	24000924	MF, 3300 ohm, 1/4W
R462	24367103	CF, 10k ohm, ±2%
R463	24339479	MF, 4.7 ohm, 2W
R464	24366273	CF, 27k ohm
R465	24366114	CF, 110k ohm
R466	24366102	CF, 1k ohm
R467	24366102	CF, 1k ohm
R468	24366333	CF, 33k ohm
R469	24000465	FR, 9.1 ohm, 1W
R470	24338568	MF, 0.56 ohm, 1W
R471	24381301	OMF, 300 ohm, 1/2W
R472	24552270	OMF, 27 ohm, 1/2W
R478	24376333	CF, 33k ohm, 1/2W
R479	24381760	OMF, 75 ohm, 1/2W
R480	24552272	OMF, 2700 ohm, 1/2W
R481	24366393	CF, 39k ohm
R482	24366103	CF, 10k ohm
R483	24366154	CF, 150k ohm
R484	24366473	CF, 47k ohm
R486	24382103	OMF, 10k ohm, 1W
R487	24366472	CF, 4700 ohm
R488	24366474	CF, 4700 ohm
R489	24366332	CF, 3300 ohm
R490	24366332	CF, 3300 ohm
R491	24366912	CF, 9100 ohm
R492	24366102	CF, 1k ohm
R493	24366682	CF, 6800 ohm
R494	24366153	CF, 18k ohm
R501	24366223	CF, 22k ohm
R502	24366101	CF, 100 ohm
R503	24366101	CF, 100 ohm
R504	24366101	CF, 100 ohm
R505	24366102	CF, 1k ohm
R506	24366103	CF, 10k ohm
R508	24366102	CF, 1k ohm
R509	24366102	CF, 1k ohm
R510	24366102	CF, 1k ohm
R511	24366101	CF, 100 ohm
R512	24366101	CF, 100 ohm
R520	24366103	CF, 10k ohm
R521	24366223	CF, 22k ohm
R522	24366473	CF, 47k ohm
R601	24366562	CF, 5600 ohm
R602	24366562	CF, 5600 ohm
R603	24366222	CF, 2200 ohm
R604	24366222	CF, 2200 ohm
R607	24366100	CF, 10 ohm
R608	24366100	CF, 10 ohm
R609	24366229	CF, 2.2 ohm
R610	24366229	CF, 2.2 ohm
R611	24366223	CF, 22k ohm
R612	24366223	CF, 22k ohm
R690	24366473	CF, 47k ohm
R681	24366103	CF, 10k ohm
R683	24366223	CF, 22k ohm

Location No.	Part No.	Description
R684	24366223	CF, 22k ohm
R687	24366103	CF, 10k ohm
R688	24366103	CF, 10k ohm
R688	24552391	OMF, 390 ohm, 1/2W
R690	24552391	OMF, 390 ohm, 1/2W
R701	24872221	Chip, 220 ohm, 1/16W
R702	24872221	Chip, 220 ohm, 1/16W
R707	24872100	Chip, 10 ohm, 1/16W
R708	24872100	Chip, 10 ohm, 1/16W
R709	24872100	Chip, 10 ohm, 1/16W
R710	24872100	Chip, 10 ohm, 1/16W
R711	24872100	Chip, 10 ohm, 1/16W
R712	24872100	Chip, 10 ohm, 1/16W
R713	24872100	Chip, 10 ohm, 1/16W
R714	24872100	Chip, 10 ohm, 1/16W
R715	24872153	Chip, 15k ohm, 1/16W
R716	24872103	Chip, 10k ohm, 1/16W
R717	24872622	Chip, 6200 ohm, 1/16W
R718	24872152	Chip, 1500 ohm, 1/16W
R720	24872103	Chip, 10k ohm, 1/16W
R721	24872223	Chip, 22k ohm, 1/16W
R722	24872222	Chip, 2200 ohm, 1/16W
R725	24872754	Chip, 7500 ohm, 1/16W
R727	24871221	Chip, 220 ohm, 1/8W
R728	24872393	Chip, 39k ohm, 1/16W
R729	24872153	Chip, 15k ohm, 1/16W
R735	24872911	Chip, 910 ohm, 1/16W
R736	24872911	Chip, 910 ohm, 1/16W
R737	24872152	Chip, 1500 ohm, 1/16W
R738	24872332	Chip, 3300 ohm, 1/16W
R739	24872362	Chip, 3600 ohm, 1/16W
R740	24872911	Chip, 910 ohm, 1/16W
R741	24872911	Chip, 910 ohm, 1/16W
R742	24872152	Chip, 1500 ohm, 1/16W
R743	24872332	Chip, 3300 ohm, 1/16W
R744	24872362	Chip, 3600 ohm, 1/16W
R745	24872911	Chip, 910 ohm, 1/16W
R746	24872911	Chip, 910 ohm, 1/16W
R747	24872152	Chip, 1500 ohm, 1/16W
R748	24872332	Chip, 3300 ohm, 1/16W
R749	24872362	Chip, 3600 ohm, 1/16W
R750	24872911	Chip, 910 ohm, 1/16W
R751	24872911	Chip, 910 ohm, 1/16W
R752	24872152	Chip, 1500 ohm, 1/16W
R753	24872332	Chip, 3300 ohm, 1/16W
R754	24872362	Chip, 3600 ohm, 1/16W
R755	24872911	Chip, 910 ohm, 1/16W
R756	24872911	Chip, 910 ohm, 1/16W
R757	24872152	Chip, 1500 ohm, 1/16W
R758	24872332	Chip, 3300 ohm, 1/16W
R759	24872362	Chip, 3600 ohm, 1/16W
R760	24872911	Chip, 910 ohm, 1/16W
R761	24872911	Chip, 910 ohm, 1/16W
R762	24872152	Chip, 1500 ohm, 1/16W
R763	24872332	Chip, 3300 ohm, 1/16W
R764	24872362	Chip, 3600 ohm, 1/16W
R778	24872101	Chip, 100 ohm, 1/16W
R779	24872101	Chip, 100 ohm, 1/16W
R780	24872101	Chip, 100 ohm, 1/16W
R781	24872101	Chip, 100 ohm, 1/16W
R782	24872101	Chip, 100 ohm, 1/16W
R783	24872101	Chip, 100 ohm, 1/16W
R786	24872472	Chip, 4700 ohm, 1/16W
R787	24872472	Chip, 4700 ohm, 1/16W

Location No.	Part No.	Description
▲ R801	24009954	Metal-Glazed Resistor, 2.2M ohm, 1/2W
▲ R802	24009954	Metal-Glazed Resistor, 2.2M ohm, 1/2W
R803	24384223	OMF, 22k ohm, 3W
R804	24545109	FR, 1 ohm, 1/4W
R805	24366101	CF, 100 ohm
R806	24007061	Cement, 1.8 ohm, ±10%, 2W
R807	24007065	Cement, 4.7 ohm, 5W
R808	24552472	OMF, 4700 ohm, 1/2W
R812	24381103	OMF, 10k ohm, 1/2W
R813	24366182	CF, 1800 ohm
R814	24366122	CF, 1200 ohm
R815	24552102	OMF, 1k ohm, 1/2W
R816	24323689	MF, 6.8 ohm, 2W
R818	24322278	MF, 0.27 ohm, 1W
R819	24321568	MF, 0.56 ohm, 1/2W
R821	24366101	CF, 100 ohm
R822	24321568	MF, 0.56 ohm, 1/2W
R824	24366472	CF, 4700 ohm
R825	24366153	CF, 15k ohm
R827	24366102	CF, 1k ohm
R828	24366562	CF, 5600 ohm
R829	24322278	MF, 0.27 ohm, 1W
R830	24569181	Cement, 180 ohm, 10W
R831	24383152	OMF, 1500 ohm, 2W
R832	24363152	OMF, 1500 ohm, 2W
R836	24366101	CF, 100 ohm (U901)
R836	24645620	FR, 62 ohm, 1/4W (U401)
R837	24000145	MF, 330 ohm, ±1%, 1/4W
R838	24366103	CF, 10k ohm
R840	24396681	CF, 680 ohm
R842	24391471	OMF, 470 ohm, 1/2W
R843	24552561	OMF, 560 ohm, 1/2W
R847	24366103	CF, 10k ohm
R848	24366472	CF, 4700 ohm
R849	24366472	CF, 4700 ohm
R850	24545109	FR, 1 ohm, 1/4W
R851	24545109	FR, 1 ohm, 1/4W
R861	24569229	Cement, 2.2 ohm, 10W
R862	24384223	OMF, 22k ohm, 3W
R863	24383180	OMF, 18 ohm, 2W
R864	24366101	CF, 100 ohm
R865	24323518	OMF, 0.51 ohm, 2W
R866	24552102	OMF, 1k ohm, 1/2W
R867	24321568	MF, 0.56 ohm, 1/2W
R868	24552103	OMF, 10k ohm, 1/2W
R869	24386272	CF, 2700 ohm
R870	24366122	CF, 1200 ohm
R871	24366272	CF, 2700 ohm
R872	24366392	CF, 3900 ohm
R879	24366102	CF, 1k ohm
R882	24366472	CF, 4700 ohm
R883	24366472	CF, 4700 ohm
R884	24366472	CF, 4700 ohm
R885	24366472	CF, 4700 ohm
R886	24366472	CF, 4700 ohm
R887	24552162	OMF, 1600 ohm, 1/2W
R889	24366102	CF, 1k ohm
R890	24382333	OMF, 33k ohm, 1W
R892	24552471	OMF, 470 ohm, 1/2W
R893	24552561	OMF, 560 ohm, 1/2W
R894	24366562	CF, 5600 ohm
R895	24531120	FR, 12 ohm, 1/2W

Location No.	Part No.	Description
R896	24366102	CF, 1k ohm
R897	24366101	CF, 100 ohm
R898	24366881	CF, 680 ohm
△ R899	24005007	Metal-Glazed Resistor, 8.2M ohm, 1W
R901	24366101	CF, 100 ohm
R902	24366101	CF, 100 ohm
R903	24942102	CC, 1000pF, 1/2W
R904	24366102	CF, 1k ohm
R905	24366151	CF, 150 ohm
R906	24366471	CF, 470 ohm
R907	24327131	MF, 130 ohm, ±1%, 1/4W
R908	24366430	CF, 43 ohm
R909	24366300	CF, 30 ohm
R911	24366101	CF, 100 ohm
R912	24366101	CF, 100 ohm
R913	24942102	CC, 1000pF, 1/2W
R914	24366102	CF, 1k ohm
R915	24366121	CF, 120 ohm
R916	24366471	CF, 470 ohm
R917	24327131	MF, 130 ohm, ±1%, 1/4W
R918	24366430	CF, 43 ohm
R919	24366300	CF, 30 ohm
R921	24366101	CF, 100 ohm
R922	24366101	CF, 100 ohm
R923	24942102	CC, 1000pF, 1/2W
R924	24366102	CF, 1k ohm
R925	24366151	CF, 150 ohm
R926	24366471	CF, 470 ohm
R927	24327270	MF, 27 ohm, ±1%, 1/4W
R928	24366430	CF, 43 ohm
R929	24366300	CF, 30 ohm
R931	24555153	OMF, 15k ohm, 3W
R932	24555153	OMF, 15k ohm, 3W
R933	24000929	FR, 1.5 ohm, 2W
R934	24942121	CC, 120 ohm, 1/2W
R935	24366150	CF, 15 ohm
R941	24555153	OMF, 15k ohm, 3W
R942	24555153	OMF, 15k ohm, 3W
R943	24366103	CF, 10k ohm
R944	24366120	CF, 12 ohm
R945	24366101	CF, 100 ohm
R951	24555153	OMF, 15k ohm, 3W
R952	24555153	OMF, 15k ohm, 3W
R953	24366390	CF, 39 ohm
R954	24366221	CF, 220 ohm
R955	24366151	CF, 150 ohm
R957	24366821	CF, 820 ohm
R961	24366821	CF, 820 ohm
R962	24366391	CF, 390 ohm
R963	24366222	CF, 2200 ohm
R964	24366332	CF, 3300 ohm
R965	24366471	CF, 470 ohm
R966	24366821	CF, 820 ohm
R967	24366122	CF, 1200 ohm
R968	24366101	CF, 100 ohm
R969	24366103	CF, 10k ohm
R970	24366222	CF, 2200 ohm
R971	24367152	CF, 1500 ohm, ±2%
R972	24367471	CF, 470 ohm, ±2%
R973	24367681	CF, 680 ohm, ±2%
R974	24367681	CF, 680 ohm, ±2%
R975	24366242	CF, 2400 ohm
R976	24367682	CF, 560 ohm, ±2%

Location No.	Part No.	Description
R977	24367152	CF, 1500 ohm, ±2%
R978	24367681	CF, 680 ohm, ±2%
R7707	24366472	CF, 4700 ohm
R7708	24366472	CF, 4700 ohm
R7710	24555680	OMF, 68 ohm, 3W
R7711	24323229	MF, 2.2 ohm, 2W
R7712	24366472	CF, 4700 ohm
R7713	24366472	CF, 4700 ohm
R7715	24555680	OMF, 68 ohm, 3W
R7716	24323229	MF, 2.2 ohm, 2W
R7717	24366472	CF, 4700 ohm
R7718	24366472	CF, 4700 ohm
R7720	24555680	OMF, 68 ohm, 3W
R7721	24323229	MF, 2.2 ohm, 2W
R7722	24366472	CF, 4700 ohm
R7723	24366472	CF, 4700 ohm
R7725	24555680	OMF, 68 ohm, 3W
R7726	24323229	MF, 2.2 ohm, 2W
R7727	24366472	CF, 4700 ohm
R7728	24366472	CF, 4700 ohm
R7730	24555680	OMF, 68 ohm, 3W
R7731	24323229	MF, 2.2 ohm, 2W
R7732	24366472	CF, 4700 ohm
R7733	24366472	CF, 4700 ohm
R7735	24555680	OMF, 68 ohm, 3W
R7736	24323229	MF, 2.2 ohm, 2W
R7738	24554101	OMF, 100 ohm, 2W
R7741	24366102	CF, 1k ohm
R7742	24366681	CF, 680 ohm
R7743	24366223	CF, 22k ohm
R7744	24366102	CF, 1k ohm
R7745	24366152	CF, 1500 ohm
R7746	24366223	CF, 22k ohm
R7747	24366222	CF, 2200 ohm
R7749	24366331	CF, 330 ohm
R7750	24323278	MF, 0.27 ohm, 2W
R7751	24366471	CF, 470 ohm
R7757	24366223	CF, 22k ohm
R7758	24366222	CF, 2200 ohm
R7763	24366471	CF, 470 ohm
R7764	24366331	CF, 330 ohm
R7765	24339398	MF, 0.39 ohm, 2W
R7766	24366223	CF, 22k ohm
R7767	24366562	CF, 5600 ohm
R7768	24366102	CF, 1k ohm
R7771	24366102	CF, 1k ohm
R7772	24366102	CF, 1k ohm
R7774	24554151	OMF, 10k ohm, 2W
R7775	24366273	CF, 27k ohm
R7776	24366472	CF, 4700 ohm
R7777	24366273	CF, 27k ohm
R7778	24366472	CF, 4700 ohm
R7779	24366102	CF, 1k ohm
R7780	24366102	CF, 1k ohm
R7781	24366333	CF, 33k ohm
R7782	24339828	OMF, 0.82 ohm, 2W
R7783	24366331	CF, 330 ohm
R7784	24366471	CF, 470 ohm
R7785	24366222	CF, 2200 ohm
R7786	24366103	CF, 10k ohm
R7787	24366104	CF, 100k ohm
R7788	24366103	CF, 10k ohm
R7789	24366471	CF, 470 ohm
R7790	24552182	OMF, 1800 ohm, 1/2W